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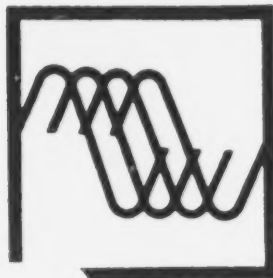
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ABSTRACT

This report on a 2-day workshop held in 1987 on the role of television in learning begins with a summary of points made or discussed by the participants, including: (1) whether educational programs for adults should be given greater attention; (2) the ways in which programming for children is influenced by market forces; (3) the costs of producing programs in Australia, and the awards won by some Australian children's programs; (4) the recently established Learning Network which provides opportunities for distance education in the community; and (5) the need for research and evaluation of television's effects on behavior, the effects of different program designs on learning, and the uses of television in instruction. Five papers presented by prominent speakers in the field of educational television make up the major part of the report: (1) "The Role of Television in Formal Education" (Henrietta Clark); (2) "Television and Learning about the Future" (Jerry Tickell); (3) "The Learning Network--Exciting Opportunities for Distance Education" (Erina Rayner); (4) "Alternatives in Children's Television Programming" (Jeff Peck); and (5) "Television's Failure To Educate--History and Analysis" (Merrelyn Emery). A list of members of the Australian APEID National Development Group and 92 references are included. (DB)

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NATIONAL WORKSHOP ON THE ROLE OF TELEVISION IN LEARNING

Papers from the UNESCO-APEID workshop,
held in Canberra April 30-May 1, 1987

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of Educational Innovation for
Development)

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(Papers were taped by the Media Department of Woden TAFE College. This is gratefully acknowledged).

BACKGROUND TO THE WORKSHOP

The workshop was arranged as an activity of the Australian National Development Group for the UNESCO Asian and Pacific Program of Educational Innovation for Development. (APEID).

APEID is a regional co-operative UNESCO education activity in which Asia-Pacific Member States of UNESCO are invited to participate. Through the APEID network its members pool and exchange knowledge and techniques in educational innovations to aid development in participating countries.

The Australian National Development Group - an advisory body of the Australian National Commission for UNESCO - decided to convene this workshop on the role of television in learning as part of its responsibility for encouraging innovation in education for development. It was agreed that a report on the workshop, which would include copies of the papers presented and a summary of the discussions, would be prepared and distributed to interested people in Australia and overseas.

Five speakers prominent in the field were invited to present papers to the National Development Group as an extension of a regular meeting of the Group.

An invitation to attend the workshop was also extended to a number of institutions and members of the public in Canberra.

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SUMMARY REPORT

The Australian National Development Group of the UNESCO Asian and Pacific Program of Educational Innovation for Development (APEID), convened a workshop on Thursday-Friday, April 30 - May 1, on the role of television in learning. The workshop was held at the centre for Continuing Education at the Australian National University. The Centre is a member institution of the National Development Group.

Points made or discussed during the workshop included:

- . Priorities of the ABC* in education programs have been largely directed at the school level. The question of whether the priorities should be changed to give greater attention to adult education was raised. The ABC already is giving greater emphasis in radio to adult education.
- . The recently established Learning Network is working to satisfy the need for distance education in the community using television supplemented by printed materials.
- . The Learning Network is providing opportunities for mature age students to do television courses including some for credit from certain tertiary education institutions. Many of the participants in these courses are people who, for a variety of reasons, do not find formal courses suitable or accessible. Some prefer education in the privacy of their home to the formal classroom or lecture situation. The most popular television course so far concerns the establishment of small business.
- . Only a small amount of government assistance (with funding courses for these mature age students), is available in Australia at present. Government support for similar programs is available in countries such as Canada and the United Kingdom.
- . Amendments to the copyright regulations governing the use of taping video material for use in education are crucial for the success of television as a learning medium as students need to be able to repeat programs to understand the material being presented.
- . Television allows young people to be exposed in a concentrated form to the whole range of life experiences rather than experience them sequentially over a lifetime.
- . In Canada talk-back television is now being used employing tele-conferencing techniques and one-way television. This technique may have application in Australia.
- . Television programs prepared for young children are significantly influenced by market forces. Many of the programs produced in the United States are funded by the toy manufacturers. Some of these are shown in Australia. Designers of such programs may not give primary attention to the inclusion of learning material in their programs.

* ABC - Australian Broadcasting Corporation.

- . Commercial television stations in Australia prefer to screen programs for older children and adults since they have more purchasing power than young children. There are a number of legal requirements in Australia to enforce screening of some television material for young children. The number of hours required is low (eight hours per annum), and, because of commercial considerations, stations have little or no incentive to exceed the minimal requirements.
- . It is more economical for commercial television stations to buy programs from overseas than to produce programs in Australia because here such programs are much more expensive to create.
- . Some programs for young children are, however, being produced in Australia. Several of these have won international awards and Australia is earning a well deserved recognition for its quality childrens programs. Some potential for exporting programs exists.
- . The ABC has received special commendation for its work over the years in developing programs for childrens education.
- . A considerable body of research exists which can be interpreted as showing that television is not an effective learning medium; but there are supporters and opponents of this view. There appear to be two reasons why TV can be considered an ineffective medium for learning. Firstly TV produces radiated light rather than reflected light and radiated light is a poor conveyor of information for human beings. Secondly the rate of visual signals from flashing dots on a television screen exceeds our capacity to process information. It was suggested that more might be learnt from TV by listening to it and turning off the picture.
- . Learning should not be based on the false assumption that people learn what they are told. Whatever the medium for presentation of new material learning is an active process experienced by the learner. Teaching is not the same as learning. This should be taken into account by those designing television programs.

Follow-up Action

- . It was acknowledged that further evaluation of television programs to determine their influence on learning is essential if the use of television as a learning medium is to be further developed. Such evaluation should include assessing the effects of television on learning by students themselves as well as assessing the quality of the program itself.
- . The knowledge of such evaluation should be shared with other countries.
- . Access and availability of television assisted learning such as that provided through the Learning Network should be further developed.

- . The nature of television programs designed to promote learning and the effect different designs have on learning should be explored further. For example whether a cartoon presentation is more effective for young children than a drama presentation.
- . Further research and evaluation is needed to measure the extent to which TV affects changes in behaviour. Health education campaigns on television and their effect on lifestyles are examples.
- . There is a need for research to evaluate TV as a cultural agent.
- . There is a need to show teachers how best to use television in their programs.
- . The limitations of television as a learning medium need to be acknowledged.
- . The links between television and computers, and other information technology need to be explored to promote the best co-ordinated approach to learning.

MEMBERS OF THE AUSTRALIAN APEID NATIONAL
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THE ROLE OF TELEVISION IN FORMAL EDUCATION

By Henrietta Clark*

*Mrs Henrietta Clark is head of the Australian Broadcasting Corporation's Childrens and Education Department (Television). She is responsible for the ABC Schools Television and has been working in education broadcasting since 1968.

The biography that you read on the brochure prepared for the workshop says I have been working in educational broadcasting since 1968. That is true but I did not feel called upon in that brochure to elaborate that for 15 years of that time I was concerned with the pre-school program "Play School," which is a program not normally regarded as an educational broadcast..

I do not feel I am misleading you because I put it to you that "Play School" is in fact a microcosm of an educational broadcast in that it is audience centred, it defines its audience and closely targets it. It has a good understanding of a child's developmental level and it works within that. It has an understanding of children's language level, their image comprehension, what interests them and their humour level. It uses what we know about how children 3 - 4 years of age learn. For example it encourages active involvement, participation during the program, and gives suggestions for things to do after the program. There are adults with whom the child can relate, who are warm and trusted and loving people. It shows examples of other children, not too many so that the viewer loses the direct relationship with the hosts - but enough to create empathy and models. It works within the cultural norms of Australian society so that it can elicit parental or adult support. The early "Sesame Street" research, for example, showed that learning came not directly from the program in isolation but from situations where an adult supported and built on what the program was providing.

To lock into the audience in this way "Play School" has, as an integral part of the production team, a qualified early childhood educator who works through right from the very beginning of the scripting to the recording and through to evaluation of the program afterwards. It engages in a continual feedback loop and it helps that it is a long-running program and it uses the findings of formal research, both in learning theory and in children's attention to television.

I have described one program at length because I believe that some of the factors which make "Play School" successful as I believe it is, can be identified as factors which help create successful educational television.

I have now moved away from "Play School" and have spent the past two or three years in a wider involvement with the ABC's educational broadcasts.

In this talk I am going to confine myself to schools broadcasts. They are not the only educational television that the ABC provides or transmits. However Ms Rayner is talking tomorrow about the Learning Network and although we are making tentative stabs at adult education we have chosen to work first of all in the parenting area.

We do not begin in television to offer a comprehensive adult education service because we can not do much. We have not the resources if we are to maintain the schools service that we currently provide. And I would find it useful and profitable if a gathering such as this could include in its discussion whether this priority is appropriate in Australia today or in the future.

So I will be talking about the role of television in schools and briefly about some worries concerning educational television in less developed countries.

First of all I think it is important to make some distinctions. Some television programs can be identified and defined as instructional. They provide direct teaching. They do the teachers job; they replace the teacher. If a teacher is present he or she is simply the manager of the situation, the facilitator. An Australian example might be the role of the parent in the School of the Air broadcast situation. Direct teaching may not be appropriate in a country with a developed education system because all power is taken by the broadcaster. The teacher on the spot is unimportant. The process also devalues personal relationships and social contacts which are part of the education process. There is a possibility, too, that it could lead to a narrow robotic style of

education and finally it puts all the eggs in one basket. Whereas education comes from a number of angles. For some things television is good; for other things, books; for other things, personal interaction; for others, hands-on doing. Also different children have different learning styles.

Then there is the educational use of general television; any television. A teacher might, for example, use "Neighbours" as a stimulus to explore personal development areas. Teachers use the news; they use wildlife programs; they use movies as a basis for media education. I have got here a media video thing from the Liverpool region in South Sydney on rock clips. This resource is designed to help students investigate rock clips in the classroom. The problem with that to a certain extent is that the use of television in general has value but busy teachers do not have a lot of time to record and select and edit material to make it really useful and relevant to their teaching program, and at the moment such a use is illegal in Australia. But I am delighted that the proposed amendment to the Copyright Act will cover all television programs for educational institutions not just specially designated educational broadcasts as has previously been the case in the UK.

Thirdly there is television which is a purpose built resource. Television used in this way assumes a developed education system. The programs may be fairly didactic or they may be programs for enrichment. But they are expected to be used as other resources are used. They are materials which are not essential to teaching and which the teacher is completely free to select to integrate into his or her own teaching program. I stress strongly television in this definition does not purport to teach of itself. The teacher selects the program knowing his or her class, their special needs, their background, their level of understanding and knowledge, and uses the program in association with other resources such as books or school trips. In this use of television the moderating-filtering-developing role of the teacher is paramount.

I have got a tape which I am going to show in a moment. I have to say I did not put it together for this gathering; it is a general compilation that I made for some special interest seminars which we were running around the country. It lasts for about 10 minutes and it shows some of our childrens programs which are not relevant to this discussion. But it does show some of the sorts of television which I will be talking about. It shows a television program which you can see is an archival document in its own right and which is used for history students. It shows a recreation of a historical situation for primary students. It shows the use of television techniques for demonstration in a geometry program. It shows the sort of effective influence of a passionate enthusiast who is talking about electricity and it also shows the more direct teaching approach of a program like "Behind the News."

TAPE PLAYED

What then is the role of this sort of programming in the schools?

For one thing children find television attractive. They watch a lot of it, they incorporate ideas from it and they may or may not imitate it directly depending on what factors link them with the program or which research you read. They certainly play out scenes from television. They use television stories and characters as a basis for working out their own lives and it is a stimulus for play. There was a nice little paragraph in the Sydney Morning Herald recently about a 3-year-old child who had its Batman costume and its Superman costume and now it wants a Grim Reaper costume.

One of television's values in the classroom is that the medium itself is attractive. It is associated with entertainment. It comes with no negative baggage. So, for example, Year 10 students who feel antagonistic to the authoritarian school system, as they perceive it, may accept messages from television.

Television is also a mode of communication which copes with a lower level of decoding skill than you need in some other school activities. You do not need to be able to read well and you do not need the level of understanding spoken English that you need to understand the teacher. Television gives visual and audio cues as well as words. Of course television has its own codes and I feel that insufficient study has been made of media literacy and the effects on the one hand of maturation and, on the other, of exposure to the media. Even intelligent adults may have to work hard to decipher television. The man who wrote "Edge of Darkness" gave a talk in Sydney recently and he said he felt that this sort of material would in future not be offered as broadcast television but should be made for video so that it could be read and re-read as one would read a book; that one sequential viewing was insufficient.

Television consists of carefully chosen signs and images usually moving. For language learning the equation of image and word provides a superb learning tool almost better than real life because the attention is totally focussed on the object named - because the device is able to cut to a close up. For science there is the ability of the camera to see a moving image closer than you could see it in actuality. It enables all children to see a controlled experiment. The teacher can rewind the tape to show it again - assuming the amendment of the Copyright Act - everyone can see; the girls, the boys, the inattentive pupil at the back of the class, the primary kids at Leigh Creek; they all have equal access to that experiment. The latest technology gives television extraordinary devices to use. To "demonstrate" computer graphics there is the video "paint box" for example. So the medium itself, whether we call it film, tape or broadcast television, has educational potential.

Some final points ...

Another value that is claimed for television in education is that it provides a "window on the world." It brings into the classroom experiences which the teacher cannot. Australian teachers of media, by the way, object to this expression because they say that the experience

is filtered, it is not a true window, it is distorted in the process of being translated onto the screen. But even if the window is coloured or distorted I do not think it means that you cannot see through it or that television has no value in this respect.

Children, per se have limited experience. They are young. They have not been around long. They do not get about much. Their experience tends to be limited to their parents circle and their school circle.

Television is sometimes charged with creating in peoples mind a rubbish dump of trivia; that people only know "about" things from television; and that information is transmitted but it is not incorporated. If we are sticking to the description of television as an educational resource and if the children are not incorporating the information that has been transmitted by television, is it the fault of the medium or is it the fault of the teacher?

Television can stimulate a childs interest. Research has shown that children find news anathema. But we have figures showing that 86 per cent of the target audience watches "Behind the News" where a person explains the news clearly and warmly. The news is comprehensible and the host projects his attitude of interest and involvement to the children. I do not believe that 86 per cent of the teachers of the target audience would bother to turn on a program that their classes loathed.

If you want to excite and enthuse children about a subject you need to bring to it a certain amount of imagination and emotion. I do not hold with a maxim that reason cannot operate if the passions are aroused. I think you need the stimulus of passion; the attitudinal pull. Television programs use the full range of the medium to attract; to affect: Drama, graphics, animation, sound, music, and storytelling techniques create an experience which the teacher with the aid of support materials builds upon. Television is a social equaliser. It provides a shared experience for all children and the teacher; breaking down barriers. Having shared an experience that has perhaps made the group laugh, or has moved them, the scene is now right for useful discussion. The teacher can develop

the situation and bring it into the context of the rest of the teaching program. But for a teacher to start from scratch especially in non-cognitive areas, multiculturalism or threatening territories such as sex education, it is an uphill battle.

If television is to be used effectively as a resource what conditions need to be met?

Teachers must know in advance what programs are available and be able to integrate them into their teaching. I find that 50 per cent of the times I have been to schools teachers are using the programs ad hoc. This is a waste. This means that there must be a match between the teachers needs and the programs so that the right resource is available at the right time. Whether the match is teacher run or television run does not matter so long as the match is made. This means that a careful partnership arrangement needs to be put in place between the broadcasters and the educational structure right from the curriculum development level to the teacher in the classroom. I have not got time to go into the strains and difficulties and bureaucratic barriers of this but it is crucial and formidable. In most countries at the top level you have two ministries to deal with, education and communications.

Teachers must be trained and confident in using television as a resource. Teachers can feel threatened and nervous, about the technology, about losing control of the children, even about the attractiveness of a compere as opposed to them. They need a lot of help. We have just done a national survey into the teachers use of ABC schools programs and one of the interesting preliminary findings is that programs are most used by two categories of teachers: Those in rural areas and those in cities with greater experience.

Programs need to be scheduled at the right time for the teacher. Ideally programs should be on tape so that a teacher can preview, then view and review with the children. This would mean that the resources were available at just the right learning moment. It is obviously crucial that the amendment to the Copyright Act happens soon.

Consider the big and never satisfactorily answered question: Is television an effective educational resource?

One of the problems about getting an answer is that if you are talking about television as a resource and not as direct teaching it is almost unmeasurable in isolation from other factors such as the teachers skill and good resource material.

Even with a language teaching program such as "Let's Learn Japanese", the program comes as part of a package which includes an audio cassette and a workbook. All we at the ABC have been able to do is to look to how much teachers use programs, and which programs they use, what sort of teachers use them most and whether the teachers think the programs are useful.

If any university people would like to set up a research project on the learning outcomes of educational television program, I would be delighted to participate. At the moment I am left with Wilbur Shramm's words that educational television used in the right way, in the right place for an appropriate purpose, will improve the classroom experience.

I conclude by briefly looking at the problems that may arise with setting up and using educational television in developing countries.

Television, possibly more than any other possession, spells: "I'm well off, I'm developed." And with the satellite: "I want a big toy in the sky too." (In Australia there are still doubts about the cost benefits of AUSSAT and whether we might not have achieved the same results more cheaply by terrestrial systems). For lesser developed countries television is the big cargo. For the past 25 years money and equipment has poured into setting up television stations, creating a dependance on oversea equipment and technicians and, from my superficial observation, a largely wasted resource.

I was on the island of Pemba last year. Pemba is north of Zanzibar and Zanzibar was the first country in black Africa to have television. Pemba takes the transmission feed from Zanzibar for rebroadcast as well as having its own studio and transmission facilities of its own. The night I was there a test pattern music playing on two television monitors either side of the studies front gate. A crowd was gathered in front of each. A man welcomed us in and apologised. The transmission tower was inoperable. The technician from Pye in Cambridge (UK), had not been out to fix it in six months. Usually our host played the Zanzibar feed to the monitors at the gate but tonight the feed was not coming through. He showed us around. There was an enormous 35 millimetre film chain that had been donated by Germany. Even the ABC rarely uses 35 mm. There was a tape library of rusting cans of BBC schools programs. The studio? We could not see that because it was locked and they had lost the key. In the early days of television in Zanzibar the population had been supplied with subsidised television sets which they had loaded onto dhows and sailed across to the mainland to sell at a substantial profit.

At the other end I was at a conference just before Christmas at the mass media training centre in Jakarta. A wonderful facility funded by the Japanese. But a conference had to be set up to stimulate people to find a use for the trained students.

These may be superficial development stories and certainly television has enormous potential for use in developing countries particularly in areas such as maternal and child health. There you can see people working with babies. Or in agriculture you can see the effects of, say, soil erosion or mixing fertilisers. I think it has got enormous potential in such situations. But if it is to be used as part of the formal schools system then it needs to be carefully set up with some assured long-term funding and support. There needs to be working equipment that teachers can handle.

There needs to be support material such as books and activity sheets - support material that can get distributed so that it is there at the same time as the program (even if it has to be carried for four days across mountains).

The programs need to be appropriate. Direct teaching programs may be useful if the standard of teaching is low but there are enormous problems. For a big direct teaching push there has to be an unrealistic volume of programming. In the American/Samoan experiment some years ago producers were making 20 programs a week to try to pump out the stuff.

Teachers need to be trained so they feel comfortable with the medium. It must not be a nine-day wonder where the visitors fly in, provide the equipment, a bit of technical training, a quick course by an ex-ABC producer who has received a redundancy package, or even a nice visit to Australia. It must have a reasonable proportion of local programming that is relevant to the special needs of the country rather than relying on dumped foreign programs. And this will cost. In the long-term money has to be there for equipment and maintenance, for producer training and teacher training, for support materials, for research and for evaluation and for continued production costs.

Providing an effective educational television service is hard yakka and costs money. The ABC has been at it since 1958 and still has not got it right.

I have talked about what I believe to be the role and value of television as an educational resource. The ABC has traditionally provided this service in Australia. There are advantages and disadvantages in it continuing to do so. It cannot provide State-specific programming which relates to one State's curriculum (and education is set up in Australia on a State basis). Viewing off-air is in most circumstances a less effective way to use television than to have the program on tape.

On the other hand the ABC can distribute programming quickly and effectively (through broadcast), in a country with a difficult terrain. The ABC has a reasonable publishing and distribution system for support materials. It has the ability I believe to develop program kits, audio cassettes, software, and possibly interacted video. And we have the possibility of distributing information through electronic mail to schools.

Television is expensive. If we want to economise by providing one service throughout the country the ABC may be as good an instrumentality to run it as any other. It can provide professional producers and good facilities. But is this really what this country wants? Should these resources go to other areas of education which are less well served by the system? I leave it to you.

TELEVISION AND LEARNING ABOUT THE FUTURE

By Jerry Tickell*

*Jerry Tickell is Manager of the Bicentennial Futures Education Project. He was formerly Deputy Chairperson of the State Board of Education, President of the Australian Teachers' Federation and, prior to that, he taught English in secondary schools.

I will attempt to concentrate on the future rather than on television; particularly to concentrate on what the notion of future and futures education might imply for television learning.

That is, is there anything new or additional that could be said about television as a medium for learning that derives from our ideas about futures education?

The great advantage about talking about the future is that even your worst enemies cannot expect you to be an authority. Its a logical absurdity to imagine that anyone is an expert on the future. I have great sympathy for professional historians who have so much less room to manoeuvre. So all that I can offer are some speculations (which is really the tool in trade of the futurist), and suggest some connections.

Perhaps I can also offer some counter balance to what I take to be Henrietta's general optimism about Television and Learning.

First let us consider the emergent interest in the future and some reasons why it is receiving so much attention. I suppose there are two or three fairly obvious 'explanations'. One is that whenever times get tough escapism becomes popular. For example our initial response to the events that came after the oil shocks in the 1970s and the consequent hardening of life was to resort to nostalgia - you will recall that our television screens were taken over with nostalgic movies and series, not merely the historical films but particularly the return to the 1950s.

The other response since such escapism looks in two directions was to look to the future. "The future is all we have left," as Keith Souter recently said.

There are two schools of thought about the future. There is the "pie in the sky by and by," school of thought which is in fact, if things are crook now let us look to better times; and there is the "gloom and doom" school of thought which says "if you think things are crook now you ain't seen nothing yet." Both have a perverse sort of escapist power for people in that they do ameliorate their perception of the conditions they find themselves in.

A more practical reason for our interest is the sound realisation in Australia, at least, that we have made some serious blunders over the past quarter of a century and that we are starting to pay the price for them. It seems to me that this view enjoys considerable support across the political spectrum. Peoples views may vary on the details and they may point the finger in different directions but it is hard to find anyone now who disagrees with the proposition that we have relied too heavily on agriculture, on mining, we have done so little work in developing the skills of our people, in developing our manufacturing sector and so on, that we are poorly placed in the new economic climate and worse than that we are going to be hard pressed to alter the present situation. It is not just that we are in trouble now but we do not see how the hell we are going to climb out of the trough we find ourselves in.

Most of the critics seem to agree that some of features of the present situation could have been anticipated. Not all of course. The future is never entirely predictable.

Many people would say the oil crises could never have been predicted others would say that with more skill they might have been. Even if they had been anticipated other problems would have come along unforeseen.

I am not saying that we could have foreseen all of our problems but most people seem to believe that with a little more forward planning, a little bit more of the foresight that the Nordic countries have shown, or that the Japanese have shown, we might have anticipated some of our difficulties. As a kind of reaction to that there is an over-expectation now that forward planning, anticipating the future, will get us out of the mess we are in.

This expectation is encouraged by the fact that we now have techniques and technology that make that kind of analysis much more feasible.

The process of identifying and extrapolating trends is so much more feasible now that we have the sophistication computers can provide. We can actually now identify past trends which were not apparent to people at the time and would not formerly have been apparent with hindsight. We can shuffle our data around much more skilfully than we have ever been able to. We have much more chance of realising that a trend is on us than any preceding generation.

The people who went through the industrial revolution were not able to watch a television series each evening about the progress of the industrial revolution. Most of them knew something pretty terrible was happening to them as individuals but their sense of epoch and context could never have been as developed as is ours today. Also interesting is the common belief that the changes that we are undergoing are unique in their intensity, their pace and their personal impact.

I think that belief is debatable.

My own feeling is that my mother probably went through changes that were quite as dramatic and traumatic in her lifetime as those that I am going through and it is difficult even with the technology I have spoken off to get a clear perspective.

Whether or not any other generations have been through changes as rapid and extensive as we have we are certainly in the middle of some pretty rapid movements and it is likely that those changes will continue and its likely that they will be complex.

And finally it is almost self-evident that one of our reasons for interest in the future is the possibility that we will not have one. We are probably the first generation since the Flood to become acutely aware of the possibility that we are looking at the end of the world.

When our thinking can encompass the concept of NO future we start to think much more seriously about it.

The environmental movement raises the possibility that not only may we destroy ourselves through some kind of horrendous nuclear disaster but that we may even destroy the planet more gradually. We have come to understand ecological processes to an extent previous generations could not.

It is important to realise that when we speak of the future we are talking about a growth industry. (There are not too many growth industries these days). There is an increasing futures literature. There are faculties and departments emerging in the tertiary sector. There are careers being forged. There is a jargon emerging. These are all sure signs that we are talking about an important movement. Once a movement develops its own language you know that it is here to stay.

The range of future studies is enormous. It starts at the hard end of the futures market with the hard nosed forecasting groups like the Hudson Institute and others who operate in a quasi scientific fashion; through more analytical work to the sort of speculative writings of those who are dealing, like Ursula Leguine, in notions of fantasy; or to alternative communities like the Findhorn Community in Scotland. (Richard Slaughter provided a useful overview of the field in his keynote address to the Commission for the Future Conference on Futures in Education in Melbourne in November).

All of those elements constitute what we would regard as the 'futures' area. We are talking about a fairly nebulous area that is also extensive one.

A significant point is that all of our efforts to see how young people think about the future come up with some consistent conclusions.

The first conclusion I suppose is one they share with most people and that is they do not think about it much. Most adults seem not to think about the future much. They might do a little bit of planning at some time but generally they do not conceptualise the future very much. Young people certainly do not. They tend either to think that it will be pretty much as it is or they do not think very far beyond the year they are in.

The second is that they are pessimistic about the future and most important they feel powerless to influence it. Whatever way the future is going to go it will not be they who determine it. They are not even certain that anyone will determine it.

So one of our principal concerns in the futures education project is this sense that we are dealing with a generation of young people who do not conceive of the future as being controlled or susceptible to any influence that they can exercise. They see it as pre-ordained or at least out of control. The most apt image is that of a roller coaster. The most that they can hope to do is to keep up and ride the bends.

You may be starting to ask yourself whether I will ever reach the subject of television.

It seems to me that television is one of the important elements in that phenomenon I have described above and there are two obvious ways in which it has affected the views of young people.

First it has graphically represented to them a great deal of negative imagery. This is old material but I think it is still appropriate. The media are usually attracted by the sensational or by the damaging or by the painful or by the violent. The imagery that young people gain from television is very largely negative.

Second, the picture they see of the world has been unfolded for them. Why would not the future be seen as a roller coaster? They have had no capacity to influence the past or the present. To a large extent they have watched passively these events unfolding on their screen before their eyes. They turn on the evening television news and they have absolutely no sense that they could have affected the particular items that pop out there. So the kind of imagery of the world in which they live is a world in which they are seeing it unfolded for them and they anticipate that the future will in due course also be unfolded for them.

That was all speculation. I am not aware of any research evidence for my theories but they merit further exploration.

Now I want to look at two extracts from two videos. To take that a stage further both of them are videos that look at the future - future issues. Both I emphasise are videos and I emphasise that because the earlier reference to playing over and over again seemed to me to gloss over what I would have thought was an important difference between something that was made to be played many times and something that was made to be seen once and I do not think it is sufficient to leave that aspect as "optional."

I have spent a good deal of my working and playing life in sport, and I know if we make a coaching video or a loop that is to be played repeatedly then that assumption influences how it is made, and we make certain assumptions about how it will be used and how people will learn from it. If I were assuming that the audience was only going to see something once and I still made the thing in the same way then I think I would be misusing the medium. I think that in television we have to decide the intended purpose of the tape. Perhaps programs designed for a single viewing should carry a notice saying: "Don't dare watch this again it's been assumed that all the fun of seeing this is that you don't see it again."

I remember when I first saw live international soccer after having watched all of my soccer on the television.

Quite early in the game Wales launched a strong attack and everyone around me stood up and cheered and roared, and I inferred from that that a goal had been scored. I was not especially worried about that. I sat back waiting for the replay.

Television has undermined our capacity to be spectators at least to adopt that spectator role which involves the development of perspective, observation and reflection as cast in literature. When I go to watch the basketball in America I am constantly amazed by the fact that in these huge stadium there are television screens.

The players on the court I believe are "phenomena," I mean, they are seven feet tall, they are the most remarkable athletes in the world, they perform feats of sheer magic, but the audience, the American sporting audience, cannot enjoy it unless they can watch repeated replays. Their capacity to be an audience in the old sense has suffered.

The first of two videos was screened for the workshop. It dealt with technological change and its effect on society with particular reference to computer technology and its role in creating a society in which a large number of the population is involved in processing information - an information.

That video attempted to match the visual pace and the interest of television and set out to be non-didactic. It tried to capture and reflect the pace of change, of the urgency of it all and the excitement of high tech. It did these things quite deliberately and intentionally. But it was also a clear case of a television program that "rolls on." It covered an enormous amount of material. But really it accepted very little responsibility for anyone learning anything from it. It rushed along with a series of surface images. It did not seem to have any sense of whatever learning was to take place. It is interesting that when Barry Jones was speaking, slowly, and providing concrete examples, there were no visuals. When someone was actually trying to do some manifest teaching, the visuals which would have been so useful, cut out. The visuals were there all the rest of the time when it was difficult to see what kind of learning was going to take place.

The second video was then screened. It examined aspects of the history of technology with a particular focus on the difference between automation and mechanisation.

Perhaps somewhat unfairly I tend to think of these two (video) programs as "Sesame Street" and Play School. In a sense the first one represents the worst of Sesame Street and the second characterises the cultural tradition of Playschool in futures learning.

There are important contrasts. I found the second interesting for a variety of reasons. One is simply that I felt that I had better not look away. I could have looked away from the first and it would not have made much difference at all. But the second was actually loaded with signals that were coming at us constantly and the price for turning away would have been reasonably high.

Its interest lay in the way it unpacks its ideas and opens out its understandings all the time. And I am particularly interested in the way it picked up the computer. Questions are raised in the script by means of a simulated branched interactive teaching program.

My first impression was that it was just a gimmick, that they had simply used the computer there as a sort of graphic. But what they have also done is use the computer as a way of legitimising some things that do not normally happen on video. They have found an idiom, if you like, that allows them to break the flow and underline or explain points. The computer is seen as more interactive than television.

Now I will just try to pull these comments together by making a few observations about the sort of pedagogical points that emerge from the earlier discussion. It seems to me that the basic difficulty for television is that it has trouble connecting with learners purposes. Any pedagogy I can identify with requires some *negotiation* to take place and television is unable to enter into that process.

Even that second video with its token interaction was struggling. The best it could do I suppose was what a good class teacher does and try to make some intelligent guesses about how the average person would be handling the material, about what questions would be coming up at what point, what clarification is needed and so on. But at least it paid some attention to those thought processes. Television is always going to be in trouble in that it can never really be part of any negotiations of that kind.

Secondly Henrietta's comment about television extending childrens experiences is important. I think it is clearly one of its strengths. But it is double edged sword because it extends the experience in a kind of uncontrolled way. If I am a 7-year-old getting through life at what I hope might be my own pace, *within* my family, and culture, suddenly someone's going to extend my experience without my having any reference point for that extension of experience.

How can we make sure that those extensions of experience are constructive and building, and not merely side shows or, worse, traumatic disturbances to a child's growth?

Finally television cannot follow through. It cannot accept very much responsibility for its consequences. It always has to rely on someone else to do that. It has even less chance than has a computer program of following up. So it has an unenviable task. But I think that being clear about what those limitations are is absolutely crucial in thinking about some kind of a role for it. One of the consequences of the limitations is that it is restricted to the role of stimulus or motivator so much of the time.

Teachers use television as a stimulus.

Stimulus and motivator refer to extrinsic factors.

The notion of a motivator or a stimulus implies that the learning is due to something outside the learner; that it is something that has to be caused or provoked or forced to happen. Despite its image as an aid to individualised instruction, television can never be part of any learning that is negotiated and interactive. We always have to refer to teachers using it.

Perhaps I should conclude by saying something about its role in learning about the future.

The picture of the future which I sketched earlier implies first of all that we cannot know the future and we cannot prepare for it any detailed way. Young people therefore have to develop those capacities which will help them cope with and even shape their lives in that uncertain future. And so they need to be helped to become *speculative* about different societies and different ways of doing things. They need to be able to be encouraged to make responsible decisions. That is the pedagogy that the future calls for. The task for television (or video if it is going to be video that we rely on more than television), is to explore the ways in which it can become interactive.

It is ironical that radio has managed with talk-back to achieve a measure of interaction that eludes television. So we have to explore ways of being more interactive.

Secondly from the futures point of view television (or videos) offer a powerful means of exploring this notion of scenarios. I have not had time to talk about the methodology of future study. But let me just choose one of the methodologies which may be useful for kids. You will know that futurologists employ scenarios as a way of identifying future options. Scenarios are of their nature holistic. They do not simply present single trends. The point about a scenario is that it attempts to put together a total picture and show that given certain assumptions certain circumstances will arise, and certain consequences will flow.

If young people are to become good at formulating scenarios one of the ways in which it could be done is by using a medium like the video which makes a series of scenarios for the same community (or the same group of people), "real." That is it realises those scenarios in a way that children can imagine. In time they will get better at doing it by themselves. But formulating scenarios is integral to any futures education. Television has that capacity.

Television programs need to explicate their own values. We talked before about the issue of whose values are presented. The only way I have ever known of dealing with the problem of values is to 'own-up' not only about one's own values but also about one's pedagogy. The more successful you are about helping your learner understand where you stand and what you are up to the more likely it is that the learner will assume some responsibility for his or her own learning.

Finally we need to acknowledge that values are contested territory. One of the great potentialities of television is that it can represent value conflicts in a compelling and credible human context. And it can present a wide range of values - a much wider range than children are likely to encounter in their everyday lives. It is difficult to find in a community (and get access to), all the types of value positions that ideally should be presented.

These seem to be the characteristics of futures education for which television can best cater.

At best it can do this very well.

LEARNING NETWORK

Exciting Opportunities for Distance Education

By Erina Rayner*

*Erina Rayner is Executive Director of the Learning Network. She has extensive experience in television production as a writer, director, producer and supervising script editor.

Learning Network represents an exciting initiative in the application of educational technology in Australia particularly for people disadvantaged by distance.

The School of the Air was a global pioneer in overcoming the tyranny of distance providing education by radio link to students in isolated parts of the country. Learning Network enables that learning opportunity to be extended by using television.

The Australian Broadcasting Corporation's Education Department has been providing a comprehensive range of programs on television for primary and secondary schools for the past 30 years for use as both background resource material and direct curriculum enrichment. Learning Network is extending this service to adults by broadcasting telecourses on both ABC, and SBS Australia's Government-funded ethnic television channel designed to promote multicultural awareness and understanding.

What is a telecourse?

It is not just more TV programs. It is a course of study with three integrated components - a series of television programs, a telecourse guide/text book, and a tutor. The student will get the greatest benefit from the course if he or she enrolls with an educational institution, makes contact with the tutor and studies the text book in association with the television programs.

Completion of some of the telecourses entitles the student to a certificate which can be quoted, for example, when seeking employment. Other telecourses are designed to provide educational enrichment of a more general kind and have not been accredited.

Advantages of telecourses

Course work by telecourses is ideal for a wide range of people because it features:

Ease of access in that the television component is available on national television and the remainder by correspondence.

Timetabling flexibility - student arranges the timetable to suit personal needs.

Students study in the comfort of their own homes.

Standards are reliable (courses have been developed by educational institutions and are recognised as equivalent to those provided on campus).

Relatively low cost to the student as the telecourse includes the price of the principal textbook, tutorial support and administration of the course. There are no travel costs and no tertiary education fees. The student can claim for a "self-education" tax deduction if the course is related to his employment.

Tuition: A tutor will monitor progress week by week and give feedback to the student. A student can elect to complete assignments to receive credit or may simply answer self-assessment questions and maintain regular contact with a tutor to receive a certificate of completion.

Credit towards existing tertiary courses - at this early stage two institutions have developed telecourses which entitle the student to credit points in existing accredited tertiary courses.

Why use television in distance teaching?

Television brings the outside world into the home. It can provide case studies, develop powers of observation, illustrate difficult procedures (or inaccessible and expensive experimental procedures), and it can help to motivate students. The revolution in educational technology in the last 25 years has not really benefitted the typical correspondence student who not only is deprived of face-to-face teaching but often misses out on the benefit of specially prepared film teaching resources. One of Learning Network's roles is to overcome this deficiency by making available to distance educators video resources delivered by television which can be integrated with traditional correspondence courses.

This is a move towards greater equity in the delivery of education and will help alleviate some of the disadvantages suffered by those unable to attend traditional classroom teaching.

Obviously certain subjects are more suited to treatment by television than others and these would include: Foreign languages, interpersonal skills including management, programs which use case studies to illustrate a variety of skills in the workplace, laboratory demonstrations, communication by specialists, literacy and numeracy skills, documentary programs, vocational skills, familiarisation with foreign cultures.

How to create a telecourse

Individual tertiary colleges can create a telecourse from scratch and Learning network is available as a consultant in instructional design - that is the marriage of text material and television material - with essential tutorial assistance. Another method of creating a telecourse is to adapt existing material from a number of different sources and Learning Network is available to help seek out appropriate materials for incorporation in a telecourse. Telecourses can also be created for State, national or international usage. Priorities for the creation of telecourses will be decided by a consortium of education institutions in each State. Representatives from universities, TAFE colleges and colleges of advanced education will meet in each State to decide on the

most important areas of development of the initial Australian telecourses. At the same time Learning Network will be applying for Federal Government funding for telecourse production and a Federal committee of experts in distance education will determine how those telecourse funds will be allocated.

Who can take telecourses?

Almost anyone can take a telecourse wherever there is a television set - in the home, workplace or institution.

Effectiveness of Distance Learning by Television

The experience in the United Kingdom particularly via the Open University and the experience in Canada via the Open Learning Institute of British Columbia have shown that students are able to learn as well by television as they do by any other mode.

Thousands of graduates have now passed through the Open University and have received fully credited degrees in line with on-campus students: Telecourse students are not entirely deprived of teacher-student contact, it simply takes a different form. Rather than by weekly class meetings and occasional special seminars the student receives orientation sessions, written comments, letters and telephone conversation which allow the student to "meet" his or her tutor.

Some telecourse students do have a sense of isolation from other students which can cause them to feel less capable than they really are. However there are a number of students, especially those who have been out of school for a number of years, who choose telecourses as a way to re-orient themselves towards tertiary study and who deliberately choose this opportunity to achieve on their own. Many women returning to study especially seem to find classroom settings frightening and these students often want to concentrate on academic aspects of the course without being side-tracked by social considerations or by age differences.

First Courses to Air on Learning Network

Mechanical Universe

This course introduces the student to the history, philosophy and general culture of physics. It uses a variety of visual techniques including re-enactments close-up photography of experiments, computer animation and historical re-enactments. It is an entertaining and intellectually rigorous introductory course in first year physics and supplements courses in general science and mechanical engineering.

Matter of Taste

Designed as an adjunct to home economics courses, this course introduces the student to scientific principles of food nutrition and preparation as well as the aesthetics of food preparation. It provides information about the nutritional qualities of basic foods and demonstrates the preparation of wholesome and nutritiously sound meals.

New Literacy

This course is a practical approach to introductory computer courses. It is a survey of electronic data processing, computer hardware and software systems, and information processing. It familiarises the learner with data processing and the uses of computers in personal and professional life. It includes animation to illustrate concepts plus interviews with experts.

Business of Management

A valuable introduction to managerial skills for those newly graduated in other disciplines or those who have wanted, but not had, formal training in business management. The course provides essential skills in management of change, conflict and stress, organisational communications, financial controls and productivity.

Faces of Culture

This course gives students an understanding of the anthropologists view of culture and the adaptive mechanisms which ensure the survival of the human ethnographic case studies, giving students a broad cross-cultural background against which to view contemporary social problems in their own culture. This is an ideal course for general public non-credit.

Basic Electricity and DC Circuits

This course provides a basic understanding of electricity for students with little prior knowledge of electricity or maths. Step by step explanations teach students to analyse and control electricity, and to accurately predict its behaviour with simple circuit laws.

Course development service

Staff at Learning Network are experienced in instructional design. For example the number of parts of a proposed series which will be needed or the details and design of the course manual. Staff also have considerable background in production, marketing and liaison with government and education authorities. Learning Network can assist in developing telecourses for production either by an adult learning institution or a private or State production company.

Functions of Learning Network

There is recognition by various government departments, particularly the Department of Industry, Technology and Commerce, and by key sections of the manufacturing industry that Australian adults need to upgrade their education and training qualifications.

Learning Network is dedicated to fostering an awareness in the community of its service towards providing these new educational opportunities and wishes to channel and co-ordinate requirements in association with education providers. As a co-ordinating body Learning Network can create a network of contacts which will use satellite technology to serve the growing education demands of the Australian community.

ALTERNATIVES IN CHILDRENS TELEVISION PROGRAMMING

By Jeff Peck*

*Dr Jeff Peck is the program manager responsible for project assessment and program development at the Australian Childrens Television Foundation and has a background of 10 years tertiary teaching in radio, television and film.

Why do we need to consider alternatives in Australians childrens television?

Why is it a problem?

There are two systems of television broadcasting in this country and unfortunately both of them are at heart inimicable to childrens programming. In the commercial sphere the problem boils down to the fact that kids do not have very much money. Since they do not have much money most advertisers are not interested in them. To be more precise only a limited range of advertisers have products or services that are saleable to children. Therefore there is relatively lower demand for commercial spots surrounding childrens programs.

Limited competition leads to limited returns to the station for putting childrens programs to air. Thus stations have less incentive to commit large amounts of money to childrens programs and they are inclined to tuch them away in less desirable time-slots.

Within the range of publicly owned broadcasting (the ABC and SBS), the rule applies that the taxation dollar should be spent for the greatest good for the greatest number. In television terms this means ratings. And children never fare well in a television broadcasting system dominated by a wholesale kind of rating system simply because they are always a minority audience (in more ways than one).

Especially when children are section-off according to their various developmental stages they represent very small segments of the audience. If the aim is to maximise ratings management places the best general audience material in prime-time when most people are watching and make all specialist or minority programming, including childrens, synonymous with "daytime television".

Because fewer people watch during the day fewer tax dollars are spent on it.

Despite the fact that there are more children watching television on weekday evenings than at any other time both the public and commercial systems tend to create ghettos for childrens television in certain daytime periods - early mornings, late afternoons and week-end mornings. And the programs placed in those time slots are relatively lower-cost production.

Why should not kids have big-budget programs during prime-time? No reason; except dollars and ratings!

Another important factor working against childrens television is the cost of production versus the cost of acquisition. With only 16 million people in this country we have a relatively small domestic market. In America most television programs can be produced and retrieve the expense of production from the local market alone. Having recouped their costs locally producers can then go on to sell a program overseas at a low rate - often under five per cent of the original cost of production even in first-release.

However, if we make a childrens program in Australia at least one third (and in some cases the full cost of production), has to be borne by the local broadcasters. A series that costs a million dollars an hour to produce in America can be screened here for \$50,000. An hour of Australian soap-opera may cost the network three times that. Even more invidious by comparison: A syndicated repeat like "Gilligan's Island" or "Bewitched" costs about \$100 per screening whereas to produce even a magazine-style program or game show program costs tens of thousands of dollars.

So whether a program is trying to turn a profit or trying to minimise the drain on the public purse imports look very attractive from a dollars and cents point of view.

When all these things are put together it starts to become clear why there is always pressure on childrens television to be low cost, dominated by imports and placed in poor time slots. That is why we need to consider alternatives.

There are, however, a couple of factors going for childrens television in this country.

The first is that there is a lot of talent around and occasionally it has been possible to tap it in order to produce some marvelous childrens programming. When the talent has been backed up by resources more

closely approximating those made available for adult programs the results have been reliably spectacular.

There is also a set of regulations set by the Australian Broadcasting Tribunal which insure that our talented people and the resources do get together to the benefit of child audiences at least some of the time.

In broad strokes the regulations are: Every commercial channel must show, every week day, a half hour of pre-school programming during which they may not show advertisements. That is a total of two and a half hours a week of pre-school programs without advertisements. This gives us shows like "Fat Cat and Friends" and "Humphrey Bear" which are usually screened before 10am. A second regulation mandates that every commercial channel must show, between the hours of 4pm and 5pm every weekday, C classified material which is certified as such by the Childrens Program Committee of the Tribunal. Half of that time (half an hour per day), must be first-release - that is new and Australian-produced. So that is two and a half hours a week of new Australian produced C class programs for Children older than pre-school but younger than 13. "Wombat," "Come on Kids" and other magazine-style programs are usually used to fill this quota.

Finally from more than 5,000 hours a year which each station broadcasts, commercial broadcasters must commit eight hours to new, high quality, Australian-produced C classified drama. That is eight hours a year must be screened which is certified by the Children's Programming Committee as sufficiently high quality drama for children 6-13 years of age. Between the three commercial networks this gives 24 hours per year of programs like "Winners," "The Henderson Kids," "Colour of the Creek" and "Saturdee."

Over recent years programs produced under the C drama classification have won praise at home and award around the world. Australia is now regarded as a major producer of high-quality childrens drama.

And for the magazine programs for the C hour in the afternoon the program makers deserve a lot of credit. On extremely low budgets they turn out a huge volume of generally useful and entertaining programs. Every day of the year they provide kids with a good alternative to the imported cartoons, sitcom repeats and game shows that fill the rest of most afternoon schedules.

For the pre-school programs made for the quota: Ask any parent with pre-school age children if they would like to see more of the same.

Within the realm of non-commercial television there is some good childrens programming which does not have to do with regulations. It has to do with political will and public support. Neither the ABC nor the SBS are under any specific regulatory obligation to provide that kind of programming. They do it because they see it as part of their role in the area of public service and the degree to which they do depend on the support they get from the Government and the public.

The bottom line is that after several years of making C programs we know that we can produce the full range of childrens programs and do it well. We have demonstrated this over and over. The human and technical

resources are there. It is just a matter of somehow managing to continue to do it under the economic and regulatory conditions in which we work.

Economically things are getting worse. Rising costs and the winding down of tax-incentive subsidisation would, even on their own, have brought us to the brink of a financial crisis in the industry. But for various reasons the commercial networks also have increasingly less to spend on production and the cutbacks in the ABC and SBS are already legendary.

It is going to be hard to finance any new television series for 1988. And as childrens television is always the hardest to finance it could be hit the worst by this dramatic downturn.

From the program-maker's point of view it is not any easier to make television for kids than it is for adults. Everything is involved in making childrens television that is involved in making adult television. In fact it is probably more difficult because it means working with a special audience requiring specialist knowledge. While it is not any easier mentioned, budgets may be pressed even lower placing program-makers into a situation of having to do so much for so little that something may have to give.

There will be pressure to reduce quotas so more can be spent on fewer programs. Or quality may slip. Or the "Australian-ness" of programs may disappear as producers are forced to look outside Australia for financing. If half of the budget comes from America the needs of that market necessarily become a primary concern.

Of course none of these things are desirable. The alternative is to support changes to government policies regarding the financing of film and television, particularly children's film and television, that will make financing easier; to support policies on the part of broadcasters and the ABT that will insure sustained quality, quantity and diversity of children's programming; and to voice support for good programs or practices and criticism for bad ones.

You can express your views directly to those who make decisions on policy or programming and to those who help to shape community opinion -- and it makes a difference.

Station managers, newspaper columnists, politicians and advertisers are the main people. If you want more or less of a particular kind of program say so. When a program you like is aired keep watching it, pass the word and let the station know. When a program appears which does not meet your standards make those views known, too. Do not watch it anymore and do not let your kids watch it.

At the end of the day we get what we deserve and if we ignore good programs we will get bad ones. If we do not complain about poor production values, too many imports, not enough variety or bad scheduling, that is exactly what we will get.

Finally what can the ACTF do about the crisis in children's television?

It can work like the ATC or WAFC to develop alternatives by assisting producers in the development of innovative, quality childrens programs. This is done both through advice and direct investment assistance. Usually this takes the form of sums of money to help independent producers through the difficult early stages of script development or, later on, topping up production budgets.

The ACTF also acts as an Executive Producer to finance trend-setting series such as "Winners," Kaboodle" and "Touch the Sun." "Winners" and "Touch the Sun" serve as examples of what can be done in the area of drama for children 9-13 years of age while "Kaboodle" does the same for the much-neglected younger audience.

All of these series have been anthology formats so that they also serve to demonstrate the wide variety in form and content that can be achieved in childrens drama.

Clearly with imagination, wit, energy and a good sense of fun, good childrens television can be produced across the whole range of formats and about almost every conceivable subject. So we know what the alternatives are. We have the resources to make them a reality on a regular and on-going basis. And we even know how to get there - by public awareness of the issues and effective pressure on the decision-makers in television management and in government.

Responsible use of the precious public resource the airwaves is a matter of public education leading to responsible public action. And that is up to all of us.

TELEVISION'S FAILURE TO EDUCATE :

History and Analysis

By Merrelyn Emery*

*Dr Merrelyn Emery is a Lecturer at the Centre for Continuing Education at the Australian National University. Her major interests are the design and management of learning environments, and technologies and their effect on the learning process. Dr Emery has recently done much action research in the area upon which her paper is concentrated.

This paper challenges the assumptions which have for almost half a century determined the directions of research into the power of television as an educational medium. Dr Emery has analysed rigorously the major research in the field and presents some controversial hypotheses which, given the vast reliance being increasingly placed on television in education, would bear further investigation.

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P R E A M B L E

Statements such as "television is not an educative medium" are generally treated with incredulity as "everybody knows" that television is a most informative medium and if on some occasion it has failed to produce significant learning it was probably because the program was poorly produced or used.

Unfortunately it is this conventional wisdom which is misplaced as the history of televisions educative capacity makes dismal reading. This paper overviews the evidence for television as educator and then analyses both the reasons for its failure and for public misconceptions of it.

The perspective from which this paper was reached and written is that of open systems thinking (Emery, F., 1981), which acknowledges the interdependence of an entity and its environment. Mechanistic and fragmented approaches have proven inadequate to research complex phenomena such as learning.

Learning is defined here as "the growth of the total set of actual and potential directive correlations or contents of consciousness, towards the implicate order" (Emery, M. 1985).

This definition provides an ecological concept of learning and means that learning has taken place when people have more choices for behaviour and better means for evaluating them than they had previously. People and environment are interdependent and act jointly. Environment is defined as all that which is outside the boundary of the person wherever this artificial line is drawn. This will shift as different parts of the environment take on varying relevance. Behaviour is used to cover all acts and events such as physical movement, remembering, imagining. Consciousness is defined as "the awareness of awareness" (Chein, 1972). This does not deny the importance of things of which we are only aware and they are many but if we are not aware of our awareness of them we are not in a state in which we may learn of them. By this definition adding new information to our awarenesses without its entering consciousness cannot be called learning.

The most powerful form of learning occurs when all elements of the people-environment system are experienced and brought into consciousness at the same time and the inter-relationships are clearly perceived for the first time, resulting in a substantial re-appreciation of previous knowledge. This is known as "perceptual reconstruction" and is both more profound and more extensive than understanding a discrete object or event. While debate rages as to whether television can change "attitudes" there is absolutely no evidence that it can induce this form of "learning."

Within the open systems or ecological framework several different forms of knowing are identified and clearly different means are required to measure them.

The two which are critical for television research are presented below:

<u>Forms of Knowing</u>	<u>Function or Outcome</u>	<u>Means of Measurement</u>
"knowledge of"	familiarity, acquaintance	tests of recognition
"knowledge about"	understanding	tests of recall

The difference between knowledge of and knowledge about, is a commonsense part of everyday life. When somebody asks, "Do you know person X?" and you reply, "No, I have only met her", the answer illustrates that people carefully distinguish the phenomenon of acquaintanceship or mere familiarity from understanding a person.

Knowing about or understanding a person, or how a complex piece of machinery works, demands a knowledge of what the person believes, how they behave in certain situations, or how not to lose a hand when feeding material into the machine. Understanding is knowing how things are used and being able to use them, and this applies no less in the conceptual realm than in the practical. There is little point in being able to recognize a letter of the alphabet if there is no accompanying knowledge of what it is for, or how to use it. Being able to point to a letter when its name is called implies nothing about literacy. Knowing about or understanding implies meaning and this is what teachers at any level are concerned to produce.

There is a constant search within our diverse education system for better ways to help people understand their world and what it can mean for them. Even implicitly this entails an active dynamic use of human resource and potential - the many variants on 'discovery learning' and "hands on," are only examples of countering the failure of passive mechanical concepts of 'reception of information' or familiarity to do other than induce the apathy and depression which results from social incompetence and rejection.

As this paper shows television cannot educate in the sense of adding meaning but its image has been distorted towards the educative pole because the critical distinction between recognition and recall has virtually disappeared from "scientific" consciousness.

Tests of recognition are those in which the object to be recognised is given in the test: The most commonly employed form is the multiple choice test: For example an igloo is built out of: wood, bricks, ice, skins (circle the correct answer).

The equivalent recall question would be: "Tell me what you learnt about Eskimo houses yesterday?"

This is the most elementary level of recall. Recall questions or practical tests come in a range from little to highly demanding. Recall tests such as the above can sometimes merely indicate a form of recognition (although recognition tests cannot indicate recall), and if some rudimentary knowledge is shown by the answer to this question it can be followed up by others which probe, for example, understanding of why ice houses are functional in the climate. Other forms of recall tests will require practical demonstration of what has been learnt, for example "show me how to measure out the ingredients."

Television is a notoriously deceptive medium and the reasons for this are several. People know that if they have watched or heard something in a face-to-face setting they will retain quite a bit from it. They expect, therefore, that their learning from a televised segment will be similar.

Also most of the so-called learning from television is never tested. When it is, and particularly so when by recall, the myth is exploded - after a saturation television coverage of US policy towards Nicaragua in 1983 a New York Times' poll found that only eight per cent of the population knew which side the US supported (Baker, 1983). The 'knowledge' is amorphous, fuzzy, devoid of detail but replete with emotional overtones and preferences.

Another factor that convinces people that they have learnt from television is the facility with which a group discusses the previous night's program. Watching this process is an interesting observational and analytical exercise - one that reveals a phenomenon of "serial recognition." The sequence is initiated by someone for whom a program has sparked a particular personal concern. This statement triggers a recognition in another who adds a fragment which triggers another and so it goes until a program has been substantially re-captured.

Needless to say had the participants been asked what program X was about before the process of serial recognition the answers would have indicated little learning. This process is, of course, of value to learning because by serial recognition the content is brought to consciousness and secondarily reinforced by conversation - the most powerful of all human media for learning.

For those to whom this is proof that television is an important stimulus to learning it should be pointed out that most exposure to television is never subjected to either formal testing or serial recognition. Other media consistently show higher levels of learning by recall, retention from them decays more slowly and, above all, that "learning" which is not in consciousness and cannot be recovered without precise recognition triggers is of absolutely no use when the triggers are absent. A-conceptual, sub-conscious and unable to be verbalised or generalised "knowings" are probably more of a hindrance than a benefit as the various branches of clinical psychology have cumulatively demonstrated.

Neurological data about the effects of watching television on the human nervous system indicate that tele-viewing reduces our capacity to learn particularly in the sense of 'knowing about' but it does not entirely remove it. There will be circumstances when for individual reasons some of this learning may occur. People differ markedly in their sensitivity to television technology (the medium), and those less vulnerable to its effects may retain more than others. There is little evidence of this, however, and the great weight of results points to widespread (global), impairment among viewers of all ages and educational attainments.

This paper advances the view that our current misconceptions of television's power to educate spring from two main sources. The first is that social science has failed to question its own assumptions about how people and the world work and has taken a mechanical perspective; from which many useful distinctions such as that of recognition and recall have been confused. Faced with results which contradict these assumptions television researchers have tended to discard the data.

Secondly our mechanistic world view had led us all to ignore the fact that each medium is unique. Only slowly are we learning that this is the case and while projected film and television both present visual and aural material their neuro-physiological effects are dramatically different. These arguments are detailed below but first let us trace the history of television research and the ways in which a pattern has been set with consequences for the understanding of television and its usage.

EARLY DAYS (1956-1972)

1956: America struggles to cope as the baby boom enters Fourth Grade and the USSR launches Sputnik. Despair about "falling behind" was rife and paranoic speculation was quite explicit (Carpenter, Hearings, 1958, p.189). At the time of the first inquiry in 1956 only four tests of Educational Television (ETV), had been completed but all witnesses testified to their faith that "television can teach" (Wischner, N.Y. 1956, pIII-14), and we "should not hold up a movement because we lack the data that characterise doctoral dissertation" (Stoddard, N.Y. 1956, pIII-22).

It had to be the answer! The conclusions were that the effectiveness of ETV had been demonstrated, could ease the educational havoc created by the baby boom (Jones, 1981), and, incidentally, could put them in front of the Russians.

The US Congress began hearings on ETV (1958-59), which led to the passing of the National Defence Education Act.

Extraordinarily positive testimonials to television's power to teach were again made and we will return to these. One team presented hard data. Given the belief that the learning outcomes from ETV had to be superior to those of an ordinary teacher in an overloaded, poorly resourced classroom, and allowing for some brilliant "ordinary" teachers and some failures in ETV production we would expect that ETV would produce more learning in a majority of cases, say, 70 per cent of the time. We could, therefore, hypothesise a result of:

	Percentages
ETV better than usual	70
ETV same as usual	20
ETV worse than usual	10
	100% (Following Schramm, 1962)

Using a simple formula of:

$$\frac{\text{ETV Better (+TV)} - \text{ETV Worse (-TV)}}{(+\text{television}) + \text{same} + (-\text{television})}$$

We would expect then a net effectiveness of ETV to be 0.60 (70-10/100). Table 1 shows the early findings presented:

Table 1. Comparison of Television and Standard Classes in Three Subjects (from Table 1, Hearings, 1958, p.195).

	TV better	No (Percentages)	Standard better
	N	N	N
General Chemistry	0	12	0
General Psychology	0	10	2
Psychology of Marriage	0	3	0
	0	25	2

The earliest research showed a net effectiveness of ETV as - 0.07. Carpenter also mentioned another figure of 0:30:2 (-0.06), as a "pretty firm story not only from our research but from research in the military services, Miami University, and elsewhere, where comparisons have been made under controlled conditions" (Hearings, 1958, p.197). Notwithstanding the assumptions regarding the efficacy of ETV this was the empirical evidence. Not only did ETV not enhance the effectiveness of outstanding teachers but even with outstanding teachers and its other "advantages" it produced inferior outcomes compared to those of the everyday teacher. "At a minimum teaching by television does not measurably reduce the effectiveness of instruction" (Carpenter on p.188).

Throughout his questioning Carpenter gives the impression that he implicitly knows something is terribly wrong but he has also been convinced that "sound motion pictures and other film recordings can be used effectively for stimulating learning" (p.188). Therefore he concludes that ETV can do likewise if only research is continued (p.199). His adherence to the assumption of equivalence of film and television inhibited clear thinking about the meaning of his results. That this difference has considerable significance for any associated learning process will be a major proposition of this article.

Despite the huge investment ETV was only "approximately equal" to an educational shambles. Hearings were again held in 1959 and they again stressed the "massive evidence ... that television can be used effectively to improve the quality of instruction and to make educational services more efficient" (my emphases, Hearings, 1959, p.206). Myths and legends were being created.

1962: From the beginning there has been a continued inability or unwillingness among researchers to accept the evidence of their findings. For example in 1962 the first major paper on accumulation of controlled studies was released (Schramm, 1962). Covering from Grade 3 (US), up to College level over the six major subject areas it showed:

		N	percentage
ETV better	83	21	
ETV same	255	65	
ETV worse	55	14	
	393	100	

This yields a net effectiveness of 0.07, significantly different from the expectation of the superiority of ETV ($X^2 = 13.66$, d.f. = 2, $p < .01$). For the cost of master teachers, and the expert editing and production quality ETV added nothing. In time it became known as the "scandal of the non-significant differences." But "There can no longer be any doubt that students learn efficiently from instructional television" (Schramm, 1962, p.52). Another opportunity for re-appraisal presented itself in 1967.

1967: There were now 421 controlled comparisons between ETV and conventional teaching (Table 2).

Table 2 Net Effectiveness of ETV

(from Chu and Schramm, 1967, p.7, Table 1)

<u>Level</u>	<u>Index of net effectiveness</u>
Elementary	0.09
Secondary	0.07
College	<u>-0.03</u>
<u>Sub-Total</u>	0.02
Adults *	<u>0.15</u>
<u>Total</u>	0.03

* This category was not included in the 1962 figures and we are told little about it or how it was measured in the 1967 paper. In the main these figures appear to have been drawn from McCombs; 1967.

As the data base increased the index of net effectiveness dropped from 0.07 to 0.03. This does not constitute a significant difference but the decline in elementary grades was dramatic - 0.22 to 0.09 ($x^2 = 11.14$, d.f. = 2, $p < .01$). Even the 'promising' findings for the primary grades could not be sustained.

The official line, however, remained the same and the logical difficulty was argued away (Chu and Schramm, 1967; Greenhill, 1967). A pattern had been set of uncritical acceptance and general inability to analyse the results. An exception queried a combination of television and correspondence study in Japan which was described as a "powerful learning tool" (Chu and Schramm, 1967, p.8). The data showed that the reading ability of these children dropped after television was put in their homes while their achievement in science and social studies remained the same. De Vera (1967, p.98), was brave enough to suggest that the conclusion "should, perhaps, be worded in a negative way."

The 1962 review pointed up the poverty-stricken nature of the thinking and work done after enactment of the title VII of the National Defence Education Act of 1958. "This proliferation of research did little to improve the quality of research being done at that time, however" (Beisenherz, 1972, p.2). "The waste in time, manpower and money is frightful. The number of degrees, promotions, budgets and kudos that have been awarded is frightening" (Kittross, 1969, p.210). Kittross quotes the acting director of the Communications Research Centre at Michigan State University:

"And what about those poor guys sitting up on top of the Title VII? They may well be wondering what went wrong, why a project which seemed to hold such great promise now looks like a straggly old dog."

He could see clearly that the debacle involved a failure of "scientific and human values" (Kittross, 1969, p.216).

The superiority of ETV to the ordinary classroom teacher always was a myth born of a combination of national fear and opportunism. That it should have been allowed to develop virtually unchecked with speculation taking the place of conceptual analysis is an indictment of all the academics who presided through this expansive period, and whose influence to this day is felt in territories far beyond their own. Increasingly it appeared to become more difficult for the scientific community to accept that what they had been led to believe had little basis in fact. The next phase of the story illustrates this point.

1964-1972:

(a) American Samoa

In 1964 ETV was an idea whose time had come (Schramm et al. 1981, p.1). The education system in American Samoa was a shambles, "whatever we are doing now cannot help but be better than what we are replacing" (as above, p.75). The Bold Experiment entailed no less than the entire up-grading of the education system in American Samoa with television as the primary vehicle of change: "It was intended to carry the main load of instruction rather than to supplement it" (p.2), to provide a large scale demonstration of the value of ETV as teacher.

Cost was no object (p.40-43), and "within a matter of months the Samoans had an educational system organised around a medium that was unknown to them ... two years later four of every five school-age children were spending one-fourth to one-third of their class time looking at a television picture" (p.4). Of all the factors that contribute to this dreadful experience Schramm et al suggest "everyone was simply in too much of a hurry" (p.193). But if television had been able to deliver on its promises speed of introduction could only have been beneficial.

It may be that speed and optimism also explain the otherwise incomprehensible decision not to take benchmark measurements of achievement or to allow an evaluation for 12 years. The National Association of Educational Broadcasters and the Schramm team were no strangers to experimental design as has been shown above.

Everything was done to ensure that ETV was given the best possible chance - school libraries were disapproved as they might cause confusion (p.72) and teachers had to conform to detailed instructions before, during and after the viewing. television was the teacher. As a demonstration of ETV's power as a teacher at a time when the average expenditure per student had been increased six-fold and more spent on physical plan and equipping of schools than had been spent in the entire history of Samoan public education to that time (p.43), it should have been superb. It was, however, an "utter and complete failure" (Haydon, incoming Governor of American Samoa, in 1970, when dismantling of the system had begun (p.81 of Schramm et al, 1981)).

Although no benchmarks were taken against which success could be measured Schramm et al fortunately unearthed a study of Samoan school achievement conducted in 1935. Little appears to have changed in the school system between 1935 and 1964 apart from generalised neglect. So the 1935 data for Grades 4-12 serves as the missing comparison point. Table 3 illustrates the "success" of ETV in bringing the Samoan children up to US mainland standards. This was the stated aim and therefore the appropriate measure is percent achievement over time. ETV would be judged successful if its use was associated with an increase of percent achievement over the life of the project. Schramm et al do not make such an analysis. In the footnote (p.123), they explain why in Tables 20 and 30 they change to growth scores instead of grade equivalents. "In a case like that of Samoa growth scores have the further advantage of not drawing attention to a comparison of grade equivalents between Samoa and the mainland when, because of cultural differences, this comparison may be misleading" (emphasis is mine). This is an extraordinary statement from a team whose job it was to measure ETV against its stated aim of achieving such comparability. Yet again they do provide such a demonstration on a small scale in their Table 32 but only for 1971-72 when ETV was over.

Refer to Table 3.

Table 3. Percentage achievement of US norms at three points in time

Grades*	Age	1935** Before	1971** After	1972** Dismantling underway	Net gains		
					1935- 1971	1971- 1972	1935- 1972
3	-	-	53	73	-	20	-
4	10.6	58	50	68	-8	18	10
5	11.6	61	58	56	-3	-2	-5
6	12.6	66	52	57	-14	5	-9
7	13.6	63	66	50	3	-16	-13
8	14.6	62	68	63	6	-5	1
9	15.6	58	64	60	6	-4	2
10	16.6	58	56	59	-2	3	1
11-12	17.6	52	58	56	6	-2	4
12	-	-	57	57	5	0	5
Mean		60	58	60	-2	2	0
N	532	532	5422	5706			

*From Table A.3 (p.202): Obviously if the first row is Fourth Grade the last cannot be Twelfth Grade unless as I have assumed, the small numbers of children attending them would have forced an amalgamation of Grades 11 and 12. Results calculated as educational age : chronological age.

**1935 test was Stanford Achievement Test as was Grades 3-6 in 1971 and Grades 3-7 in 1972. Higher grades in these years were measured by the SRA test. Figures here are derived from the formula Grade Equivalent : Grade, given in Tables A.5, A.6, A.7, A.8; using only those tests applied to all grades.

Table 3 tells us that in 1935 Samoan school achievement was about 60 per cent of mainland US. After seven years of concentrated ETV Grades 3-12 were achieving 58 per cent of US norms. Despite everything including the great television teacher these children were now further disadvantaged than they were in the "primitive" oral society teaching days of 1935. But by 1972 the ETV system had been widely discredited and largely dismantled at least in the high schools. (There are no clear records of what was adhered to in the elementary schools but the reader must suspect from the clues given that teachers reverted to "teaching".) The average achievement figure finally climbed back to its woeful 1935 level. In other words it took only two years of reduction in ETV with commensurate increase in face-to-face teaching to reverse seven years' destruction of standards incurred by monopolisation of teaching by television.

As the net gains columns show the results for individual grades are patchy. Some continued to slip to 1972 but overall from 1935-72 these were all primary grades where ETV was still being heavily used.

"Television as Teacher" had failed not only to increase the comparability of Samoan and mainland achievement but also to maintain the original standard.

Schramm et al's overall conclusion is: "We know that students can learn from television. There need no longer be any doubt about that ... the instructional effectiveness of television is not in question" (p.187). The discrepancy between the data and the conclusion is obvious.

But perhaps this is too harsh. Perhaps the neglect from 1935 to 1964 had resulted in a far lower baseline figure which seven years of ETV had managed to bring back to former standards? Table 4 contains data on which to make a judgement.

Table 4. Percentage Achievement of US Norms for Grade 9 in 1954 and 1964.

<u>Subject</u>	<u>1954</u>	<u>1964</u>	<u>Net Gain</u>
Reading	50	54	4
Language arts	-	63	-
Spelling	79	-	-
Social science	58	-	-
Science	52	-	-
Arithmetic computation	89	74	-15
Maths reasoning	74	-	-
<u>Mean</u>	58	64	6

For Grade 9 (first year high school), there was a rise in reading score and a drop in arithmetical computation between 1954 and 1964. The mean is also up by 1964 (Table 4). While these figures are patchy they could not support an interpretation that there had been a substantial drop in achievement in 1964 when ETV began.

Table 5. Percent Achievement of US Norms in Word and Paragraph Meaning for Grades 3-6 (From Table 27, p.121).

<u>Grade</u>	<u>Word meaning</u>		<u>Paragraph meaning</u>		<u>N</u>	
	<u>1971</u>	<u>1972</u>	<u>1971</u>	<u>1972</u>	<u>1971</u>	<u>1972</u>
	% US norm					
3	60	70	57	67	860	767
4	55	65	53	58	815	855
5	52	52	54	54	705	724
6	47	50	50	53	581	664

As we move higher up the grades in Table 5 the percentage achievement of US norms falls. Despite some minor gains from 1971-72 (which is the start of the dismantling period), Grade 6 in 1972 was performing at a lower percentage of comparability than any younger grade. Schramm et al use this test to show "that some differentiation was indeed taking place, albeit very slowly" (p.121). What it does show clearly is slippage. There was a similar pattern in maths (their Table A.10).

The data for oral English presented the researcher of the time with acute problems as he found in 1968 that the more ETV, the lower the learning score. "I could hardly put any credence in them" (Harwood, quoted on p.114).

Having seen the destructive effects of ETV in actually lowering Samoan students' performance relative to the US mainland it is interesting to compare Fia Iloa, the only school which avoided the use of television.

Table 6. Performance in Grade 12 on Michigan Test of English Language Proficiency by Television, or no Television and Television accelerated (from Table A.11).

		Percent scoring	N*
		<u>Over 70</u>	-
School:	Samoana		
	television and accelerated	81.5	35+
	television and non-accelerated	6.3	113+
School:	Fia Iloa		
	No television	68.0	?
School:	Three others (mean)		
	television and non-accelerated	3.7	434+
	All television and non-accelerated	4.3	547+

* Sample sizes are not available for 1966 and 1968.

Grade 12 was tested on the Mtelp in 1966-68, 70 and 71. The differences between the no-television school Fia Iloa, the accelerated group in Samoana and the television non-accelerated schools are dramatic. They underscore what has been learnt so far - television is a poor teacher. On these figures face-to-face teaching was from 16 to 19 times more effective than television.

As Schramm et al point out there is nothing in the genetic inheritance of Samoan children that kept them from gaining an academic grade per year as at Fia Iloa "they did make it" (p.133). By 1970 Fia Iloa was 50 per cent populated by Samoan children for whom English was still a second language although from their higher socio-economic status they may have been more familiar with it. But as Schramm et al's Table 22 shows it was not only English on which they were ahead of their grade.

Table 7. Percentage Achievement of US Norms for Fia Iloa and other Schools in 1971 (from Tables 33, p.134 & A.5., p.203)

<u>Grade</u>	<u>Fia Iloa No TV</u>	<u>Others TV</u>
1	203	-
2	145	-
3	130	63
4	123	50

Table 7 shows that over all tests in 1971 the school with no television was performing at better than US norms. The difference between this and the mean performance for the ETV schools is again dramatic and cannot be put down simply to "other differences" as Schramm et al attempt to do. No wonder the Samoans became convinced that they had been given second best (p.77). They had been!

The dismantling and recovery started in 1970 and was completed in the high schools by 1975. This date is probably too late for the high schools and perhaps overstates the case in the primary grades. At the end of 1972 high school students were watching only one hour per week while at the end of 1975, grade 8 was still watching more than three hours per week. It is not possible to directly compare progress after 1972 with the ETV period. However it is clear from their Tables 29 and 30 that for the Grade 12 high school students much smoother growth in achievement occurred after the television was replaced (with the exception of science). Schramm et al do not attempt to explain this exception but it is possible that teachers generally neglected science in order to concentrate heavily on raising the knowledge of "basics". It is stated (p.82), that most of the new teachers recruited to replace ETV were English teachers. There are also the scores of Grade 12 on an English as a foreign language test (TOEFL), for 1976, 1977 and 1978 (Table 31, p.125). From a baseline mean of 385 in 1976 there was a percentage increase in score of 2.9 to 1977 and another 4.5 per cent increase between 1977 and 1978. This supports such an interpretation and also shows that the Samoans were finally making some progress towards comparability. Schramm et al also state that between 1975 and 1979 students actually gained:

- 3.9 grades in social studies
- 3.3 grades in science (?)
- 3.0 grades in language arts
- 2.9 grades in reading
- 1.6 grades in mathematics (p.125).

Thus in this post-ETV recovery phase "Samoan high school students are gaining at the rate we would expect of a mainland high school student" (p.125); that which they were unable to do while television was the teacher.

Commercial television was on the other hand a great success reversing in terms of viewing hours the balance between education and entertainment by 1979 (p.148). The lifestyle and culture changed rapidly.

There were therefore three major costs of the Bold Experiment:

- (i) the cost of setting up and producing ETV which did not decrease over the years; not did it reduce the cost of education as a whole (p.87).
- (ii) the cost of the damage done to educational achievement by using television as teacher.
- (iii) the cost of the rapid destruction of indigenous culture.

In any terms it was an expensive venture.

Schramm et al's conclusions (a sample):

- "The figures on student learning so far as we can now resurrect them though not spectacular are far from discouraging" (p.5).
- "A realistic expectation is that ETV well used will provide, not a miracle, but rather a measured, steady, consistent improvement" (p.192). But as has been shown the only consistent improvement took place in the high schools after ETV was totally removed.
- "What took place in Samoa in 1971-74 was not a rejection of educational television" (p.90).

Schramm et al do admit there was an "increasing gap between the Samoan performance and the mainland norms" (p.134). They attempt to use almost every possible explanation for the failure of ETV except the obvious one : ETV itself disadvantages. What then can be made of their evaluation? Basically the choice is between incompetency or deliberate misleading. A few clues as to the correct interpretation of results are tucked away in the text but it is to be hoped that "any developing country that is thinking of using television to improve its educational system and any affluent country that is thinking of helping to support such a project" (p.167), will carefully study the tables before proceeding with any further Bold Experiments.

(b) El Salvador (1967-1971)

A similar sequence of events occurred in El Salvador (1967-71), where a thorough reform of the educational system would result in "a genuine showcase for the rest of the hemisphere". (Mayo et al, 1976, p.28).

There were few differences between the stories of American Samoa and El Salvador and the outcomes were virtually identical. Television as teacher did not raise educational standards and it failed to solve social inequities in the classroom or the society. ETV in El Salvador was similarly dismantled after a bitter strike by teachers in 1971.

Again no baseline measures are reported and the tests designed by the Educational Testing Service (ETS), at Princeton were unvalidated and with no vidence of reliability. As with the testing of "Sesame Street," they relied on the multiple choice, recognition form but even with this bias in favour of ETV the tests failed to establish ETV as an effective teacher (let alone a more effective one).

Despite the same exaggerated claims as were made for American Samoa the realities of the experiment including the same pattern of diminishing returns as the grades progressed were quickly noted by teachers and parents. Unfortunately for television research the standard of reporting in Mayo et al is as poor as that of Schramm et al, showing the same tendencies to argue away the data (Emery, M, 1985).

These early case studies are all from the one stable, the Institute for Communication Research at Stanford with its then Director, Wilbur Schramm. This team always managed to find a reason why ETV was not at fault. Taking the data to this point we have two inescapable conclusions. Firstly that TV as an educational medium has been vastly oversold by the academic community charged with its promotion, implementation and evaluation. Its effectiveness at best compares only with that of untrained teachers in neglected and backward oral systems (even when supported by other system-wide reforms and backups). Secondly that *advocacy* and *evaluation* continue to be inextricably confused in this area of social science research and that this fact alone is a convincing argument for basic reforms in social science conceptualisation, statistical technique and reporting.

(c) "Sesame Street"

"Sesame Street" was first broadcast nationally in the US on 10 November, 1969. The good intentions of its creators are not in doubt but its widely accepted "success" (Lesser, 1975; Polsky, 1974), is unfortunately again a myth.

Dr Herbert Sprigle, a teacher of disadvantaged children, has shown dramatically that when "Sesame Street" is evaluated strictly and scientifically in terms of its stated goals rather than by how many watch it or like it it actually *disadvantages*. Of the goals stated by the Children's Television Workshop (CTW) he selected and tested two:

- (i) Can "Sesame Street" prepare disadvantaged children for First Grade?
- (ii) Can "Sesame Street" substantially narrow the achievement gap which now exists between the disadvantaged and the advantaged child?

These were the critical two embodying the whole purpose of the program (Lesser, 1975; Polsky, 1974).

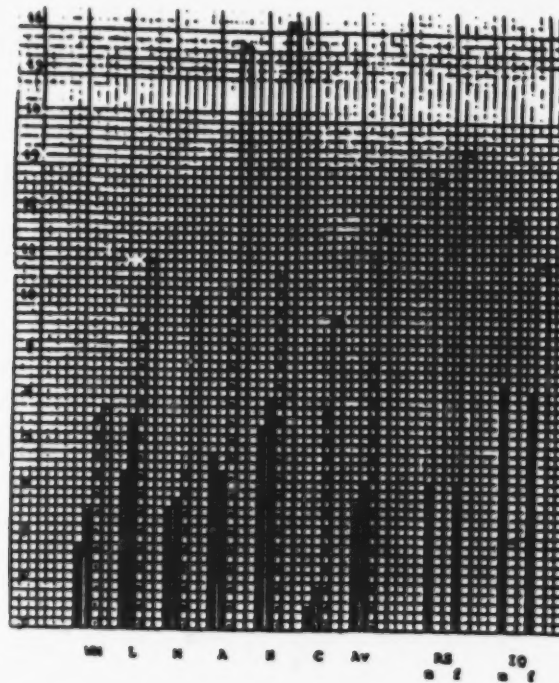
Subjects were 24 pairs of disadvantaged children randomly selected and matched on Binet IQ, age, background and socio-economic status. The experiment (E) group attended two Head Start kindergartens where they watched each day one of 130 programs of "Sesame Street." The teachers followed up on the day's programs with activities suggested by the material distributed by CTW for teachers and parents (p.203), and also sent home supplementary material for parents. It was not then a case of watching television alone and, as Sprigle points out, the circumstances were optimal. Most children watching "Sesame Street" at home have neither the environment nor the trained staff to follow through on the program.

Controls (C), were not exposed to "Sesame Street" at home or kindergarten. They attended another program for the same length of time where for 15-30 minutes a day they played with numbers, letters and shapes, and were exposed to language and communication experiences. Emotional and social development was stressed equally if not more than the cognitive.

Rejecting the ETS tests developed for "Sesame Street" on the grounds that they have no predictive validity for First Grade achievement Sprigle administered the widely used Metropolitan Readers Test (MRT), which has this validity, and which was developed specifically for that purpose. It also measures precisely those skills "Sesame Street" purports to teach.

Figure 2 illustrates its six sub-tests. In addition Sprigle administered the "Draw a Person Test" to the E and C groups. This can be used as raw scores (RS), or as a derived IQ. All testing was done one month after entering the First Grade class so the results measure learning and retention over the summer.

Figure 2 The Disadvantaging Effect of 'Sesame Street'
(from Sprigle, 1971 tables 1, 2, 3 & 4)



Where: ■ = Sesame Street curriculum; ▨ = Matched Controls from previous year; □◦ = Unselected Classmates; □ = Matched Controls without Sesame Street.

And Where: WM = Word Meaning; L = Listening; M = Matching; A = Alphabet; N = Numbers; C = Copying; Av = Average score of six tests; RS = Raw Scores on Draw a Person Test; IQ = IQ derived from raw scores on same test.

* In order to fit all the data on one graph I have averaged Sprigle's total score on the MRT, halved the mean RSs for the 'Draw a Person Test' and divided the IQs by 10. This in no way affects the comparability or strength of relationship.

Figure 2 shows just how dramatic the results were found to be. In all but one case (A), the E group had the lowest scores of any. All differences between E and C were significant at p.001. Those who watched "Sesame Street" with the CTW follow-up did *not* achieve a sufficient degree of proficiency in those characteristics that are important for success in mastering First Grade work (p.204). They also drew a lower number of body parts "suggesting a poor body image" and their drawings "lacked the *imagination* that was clearly evident in the figures drawn by the control children" (p.205, emphasis added).

Neither of the two goals set by CTW had been met; more than this "Sesame Street" has been shown to further disadvantage the already disadvantaged. Sprigle's study illustrates many critical points only the first of which is the inadequacy of the research and reporting of CTW and ETS. Apart from the fact that the test developed by ETS has no predictive validity for first grade achievement and no criterion measures it is simply, as Sprigle notes (p.208) a test of *recognition*. This is the same pattern of evaluation noted in El Salvador. The two tests used by Sprigle require *recall* and *ability to perform*.

Polsky's discussion of ETS's evaluation is interesting in this regard. He notes that they measured a child's ability to identify and name a geometric figure, which was not one of the primary instructional goals, but failed to measure whether there was increased understanding of rules of justice and fair play and, secondly, the generation and evaluation of explanations and solution.

The study did not say why these two areas were unexamined. Perhaps the testing agency felt that designing accurate measuring instruments was too difficult or perhaps the two areas lost their "priority" status during the broadcast year" (Polsky, 1974, p.93). ETS obviously biased their evaluation towards recognition for familiarity and away from recall for comprehension even though this meant disregard of two of the primary goals of the program.

Sprigle like Cook et al (1975), has also found that they failed to correctly interpret their data. The evidence does not support their conclusion that the disadvantage gap was closed (Sprigle, p.208-209). The same applies to their claim that nobody knew whether one program can benefit both disadvantaged and middle-class children (Polsky, 1974, p.43-44). Sprigle says this "is simply not true" (p.209), and provides the evidence for this claim. Central to this body of evidence are the factors of ability to abstract and conceptualise which are enhanced through conversation with adults. Totally different strategies are required to teach middle-class children who use language as a guide to behaviour, and the disadvantaged who are trapped at the level of concrete objects and events, and cannot generalise. Developing his analysis Sprigle shows why "Sesame Street" must necessarily widen the disadvantage gap. For discussion of this see Sprigle, 1971; Emery, M., 1985.

Ball and Bogatz (1972) rejected Sprigle's analysis by employing a curious logic. They object to non-viewers being compared to viewers "in order to show middle-class children widening their distance from lower-class children. Predictably lower-class non-viewers are going to learn less than middle-class non-viewers. Would we argue that Head Start is ineffective because lower-class children who do *not* attend are increasingly disadvantaged in comparison with middle class children?" (p.24).

But Sprigle showed that it was the treatment condition, watching "Sesame Street", which disadvantaged. Not its absence! It should also be noted that they make no attempt to reply to his criticisms of the tests they employ.

In 1975, however, the criticism heated up with Sprigle being accused of embarking "with the largest boatload of false premises about 'Sesame Street's' purposes and methods", assessing its effects "not with measures of its goals but with his own choice of standardised tests of academic achievement in school" and failing to use any advantaged children (Lesser, 1975, p.227-8).

Lesser appears to be wrong on the latter point and Cook et al's (1975), analysis of the ETS evaluation of "Sesame Street" leaves one in grave doubt as to whether Lesser should be throwing stones at Sprigle's glass house for being "too flawed technically". There was still no reply to the criticism of lack of validity. The MRT was also used by Minton who came to the same conclusions as Sprigle, and whose study has been extensively used by Cook et al as an independent check on their own findings (Minton, in Cook et al, 1975).

Both the CTW and ETS point to words and phrases which indicate that "Sesame Street" was not designed to narrow the achievement gap and that they have been misinterpreted by Sprigle, Minton and Cook et al (Ball and Bogatz, 1975). The difficulty for the reader who has followed the "Sesame Street" documentation is the constantly recurring reference by the CTW to the disadvantaged and the national problem of the "gap." Implicitly this does appear to have been the aim and the ETS has on many occasions claimed that the results show successful achievement of narrowing. In terms of validity, technical competence and logic the critics would appear to win the day.

CTW and ETS have successfully marketed "Sesame Street," its numbers and letters. They have not proven that it helps children achieve a better understanding of their world; the evidence points to the contrary. In addition heavy viewing of "Sesame Street" has been found to be the best single predictor of aggressive behaviour three months later (Singer and Singer, 1980, p.300). The message of tolerance and co-operation appears to have been drowned out by the effects of the medium (see Emery and Emery, 1975, 1976, p.95).

POST 1972Developing Countries and Oral Cultures

The stories are all depressingly similar to those of American Samoa and El Salvador. A UNESCO study of the role of TV in increasing innovative practices in rural Iran is summed up by "disappointing." Of the 15 areas covered knowledge improved in eight and declined in two yielding a net effectiveness of 0.4. It was quickly discovered that *trained tutors* were required, which was too costly; so contrary to expectations there were only 26 television clubs in 50,000 villages three years later (Tavasoli, 1978).

The rhetoric continues. India's satellite program is described in "starry-eyed terms" as a "window on the world" (Stevens, 1984, p.35). Evidence is not encouraging. Two brief reports of the Satellite Instructional Television Experiment (SITE), were published in 1979 after ETV was introduced to rural primary schools in six States of India (Shukla, 1979; Aghi, 1979).

Table 6.4 Summary Results of SITE in India

(+ means expectations were met; 0 means were not met).

<u>Expectations</u>	<u>Achievement</u>
Gains in Language Development (Literacy)	+
Gains in General Achievement	0
Gains in Science	0(?--)
Gains in Cognitive Development	0
Improved attendance	0
Better interaction with Teachers	0
More motivation to learn	0
More positive teacher attitudes towards ETV	+

* Across the six States, 19/24 (79 per cent), tests showed some learning in Grade III, 14/24 (58 per cent), in Grade V.

Erring on the positive side the net effectiveness is 0.25. Only language development was discussed in detail. It was measured by a "special test" probably of recognition; but the gradual loss of achievement from grade III to V is still seen. Achievements "especially in science were disappointing given the immense effort expended" (Shukla, 1979, p.104). The children "were primarily enchanted with the 'magic of the picture and sound'" (Aghi, 1979, p.105). That is they were captured by the *medium*.

Chu and Alfian warn of the "inexorable" pressures towards commercial rather than educational purposes from the Indonesian experience and it will be interesting to monitor developments in China where penetration is more than 92 per cent and advertising is geared to productivity rather than profit (Baker, 1983). Another to watch will be Mozambique (Mattelart and Mattelart, 1982).

Granzberg (1982), has reviewed the literature on the effects of introducing television to oral cultures which is consistent with the findings of his own eight-year research with Canadian Indians. Pre-literate people are especially vulnerable to television because of their traditions of the "mythos" - the story that instructs.

Lacking a concept of fiction television was accepted as the story teller (see also Gerbner et al, 1982), taken literally as the truth and its stories were searched for "deep, metaphorical, personal revelations and for practical relevance" (p.50). The effects parallel the two dimensions found elsewhere; a decline in self-image with a rise in fear, aggression and stress, together with increased consumption of junk food and cosmetics. But because the search for the meaning of the mythos was so frequently futile some of the traditional Algonkians came to recognise television as the negative face of the shaman, his capacity for sorcery and transforming dreams into nightmares. While conjuring, divining and dreaming commonly served the positive purposes of live, long-distance communications, they can also be used "to steal the souls of people and make them die or act crazy" (p.49). Warnings were therefore issued that television was "trying to possess the minds of children" (p.50), and there is some evidence that they were partially effective (p.50). But Granzberg does not appear optimistic offering his own warning to other native societies who must contend with the introduction of television (p.51).

One wonders how the tribal Aborigines will one day evaluate television.

Children's Learning in the 'Developed' World

John, silent, still and alone with pictures he cannot understand because there is no-one to explain them said "I'm fed up of that thing ... it's the same" (p.152).

The child who said this had watched alone for many hours daily since he was able to watch. He looked at a coloured screen but, at five, he did not know the names of colours or the name of the thing he complained about; the jigsaw rainbow which is part of every program in the "Rainbow" series. He did not know what a real rainbow looks like.

Still and usually silent he continued to watch what he was "fed up of." He was an attractive one responding to talk and attention with eager laughter often a substitute for words. He twisted and pressed his hands together as he tried to find ways of telling without the necessary vocabulary what he wanted to share. He would, I thought, love school once he recovered from the shock of finding the world so full of people especially of other children. He would at school be less deprived" (p.147) all quotes from Dunn, 1977.

John was neither mentally retarded nor from a deprived home (socio-economically speaking). But he had been seriously deprived of human interaction. Virtually his sole source of knowledge and learning had been a coloured television. His language development and expression was way below the norm for a 5-year-old.

Dunn actually watched pre-schoolers watching television in their normal environments. What parents and children do with television differs from their reports of their behaviour (Emery, M 1985) probably because they feel guilty about giving into its seduction (Himmelweit and Swift, 1976). Being a teacher Dunn probably asked questions which required *recall* and while television had been John's surrogate mother he had not learnt much not even his colours. Dunn is clear that ETV is useless to children who "have nothing else" and emphasises that "Sesame Street" research shows that it is adult support and discussion that actually provides the learning when this has been found (Dunn p.15).

Verbally incompetent and bored John continued to watch moving only for food but *without motivation* to explore and manipulate ordinary household objects and substances. While not so dissociated that he did not welcome human company John illustrates an extreme of the modern technologically devised disadvantage trap.

Learning is a natural human function mediated by conversation.

The Children's Television Workshop (CTW), does agree but obtusely. Original plans for "at-home projects" were put off because Cooney believed that "Sesame Street" should not depend on the introduction of manipulative materials (Polsky, 1974, p.43). But the ETS discovered that mothers talking about the show and reading more often to their children increased learning (Polsky 1974, p.94). So they launched "The Sesame Street Mothers Project," building "upon the most powerful resource available to young children - their parents' interest in them" (Lesser, 1975, p.209). In Australia in 1979 Lesser acknowledged this (Blazey, 1979), but continued to make the same claims for *the program itself*.

Objective analyses are more straightforward.

"Encouragement-to-view had more desirable consequences than actually viewing "Sesame Street." It may be due to establishing social relationships face-to-face rather than television-mediated processes which put "Sesame Street" back into the traditional area of learning with other people" (Cook et al, 1975, p.24). Two direct tests in Israel (Salomon et al, 1972; Salomon, 1977), showed the influence of conversation on lower-class learning from the program. Middle-class children did not benefit as they are already highly verbal communicators. Mother's involvement was as an energiser and motivator two things that television appears not to be (Emery and Emery, 1976).

Sproull contends that individual viewers of "Sesame Street" used the targeted numbers more often in post-viewing play than did group viewers (Sproull, 1973, p.113), but the difference was not significant (Emery, M., 1985). Neither group nor individual viewers demonstrated any transfer of learning from viewing to behaviour. She did, however, put one common myth to bed. The high mobility of children often observed when viewing has led parents to claim that they are not watching. But even the most talkative and mobile child maintained eye-contact with the box 60 per cent of the time (p.131). The higher degree of rhythmical physical movement by lone viewers is consistent with other reports of increased self-stimulation when viewing alone (Gadberry, 1974).

A Canadian study compared three towns - Notel (no channel), Unitel (one channel) and Multitel (four channels). "Before television came to Notel the children in the second and third grades had higher reading scores than those in Unitel who, in turn, were higher than the Multitel children. But two years after Notel had television the higher scores for its second and third graders were gone" (NIMH, 1982, p.80).

Notel childrens' verbal fluency scores on standardised tests also decreased significantly and it was apparent that television was having a negative impact on the children's verbal fluency and creativeness (National Institute of Mental Health, 1982, p.46). This is essentially the same pattern as was found by Schramm et al, 1961. The US National Institute of Mental Health also summarises the literature between 1972-82 (p.79-80). Of the eight reports they cite one in Venezuela showed an improvement with television in the home; one in Finland found no difference in vocabulary and the six others noted various decrements in achievement after the introduction of television.

This yields a pattern of +TV(1): n.s.(1): -television (6), with a consequent net effectiveness index of -0.63.

An Australian control-town study while not measuring learning claims to have demonstrated a recovery effect from the initial impact of television on other leisure activities. Murray and Kippax (1978), studied High-TV Town which had five years experience with ABC and a commercial channel, Low-TV Town with one year's experience with ABC only, and No-TV Town. The children were 8-12 years old.

Their data indicated a novelty effect which wears off with familiarity to television but they neglected to use a simple validation of their data.

Applying a typical Australian child's allocation of time through the 168 hours in a week across the three towns it became obvious that High-TV Town had significantly overestimated its activities other than televiewing (Emery M. 1985, p.344-345). Whether due to the same factor of guilt (Himmelweit and Swift, 1976), to a generalised loss of ability to accurately perceive time, or perhaps because the heavy viewers underestimated their viewing time, the "recovery" is suspect. They admit that while High-TV and Low-TV Towns watched equally often those with the commercial channel viewed for longer (Murray and Kippax, 1978, p.37).

A recent synthesis of studies of leisure-time television and school achievement yielded 274 effects from 23 studies covering 87,025 students. Complex estimates and correlations were derived giving an overall correlation between television and school performance of -0.05. Of the 23 studies three reported overall positive relation, two no effect and 18 a negative one (-0.65). The most powerful variable was mean viewing hours per week but the relationship appeared curvilinear. Females were affected more than males viewing for 15-30 hours per week and television had a greater impact on achievement for high IQ students (Williams et al, 1982). Similar results were found by Morgan (1980), and Morgan and Gross (1980).

Rejecting the mechanistic concept of learning as a purely cognitive function the Singer team at Yale have investigated the television-imagination and creativity link in a longitudinal study of cognitive and emotional development. Their original optimism that shows such as "Mr Roger's Neighbourhood" would enhance the imaginative play of children has been progressively replaced with reports of increasingly negative effects of television on developmental variables and behaviour.

Analysis ruled out the argument that aggressive children choose violent programming (Singer and Singer, 1980; Gunter, 1983). Comparing "Sesame Street" with the slower "Mr Roger's Neighbourhood" on attention and "recognition memory" Singer (1980), reported that children were more attentive to "Sesame Street" but "Mr Rogers" had the advantage in learning.

"Even for recognition memory which is the easiest type of measure those children who were less intelligent suffered more from exposure to "Sesame Street," purportedly designed for the educational disadvantaged" (p.55). An episode of "Sesame Street" designed to communicate the concept of deafness "failed completely" (59/60), to educate its pre-schooler target audience. The team concluded that:

- (i) Children of this age range lack the conceptual schemata and strategies necessary to learn from the television presentations.

- (ii) The rapid pace does not allow the pauses necessary for reflection and information processing; this applies to self-generated imagination as much as to learning.

Reviewing the empirical literature the Yale team found that generally viewing was inversely related to measures of imagination and directly related to aggressive behaviour. Heavy viewers also are more likely to confuse reality and fantasy, show poor integration of their use of play materials, and more negative affect such as anger, shame, disgust. Parents also report more frequent school maladjustment. Noted also are "gross distortions of specific details of outside reality - of so-called "world knowledge" as a consequence of television viewing" (Singer and Singer, in Press, p.29), which parallels the Annenberg School's work with adults. There is also precise confirmation from studies of Australian children (Pingree and Hawkins, 1981). Additionally Singer and Singer confirmed that "adults are crucial for children's learning ... (and), without adult help at home or in the classroom, television as it is presently constituted can become a hazard to children's cognitive development" (as above, p.38). Further detail and analysis is available in Singer and Singer, 1983; Emery M. 1985, p.351-353.

Burton et al, 1979, also found that as well as being the best predictor of poor marks in First Grade heavy viewing disadvantaged good social integration.

There is mounting evidence that children comprehend and remember little of what they see on television. In a study of "Captain Kangaroo" designed to teach about the sense of smell Friedlander et al (1974), tested 31 four and five-year-old children for comprehension. Each child was asked 20 simple recall questions of action, understanding and asides with prompting to ensure that the children were giving as much information as they had. The mean comprehension score was 44.5 per cent, the median was 42.5 per cent. "In other words more than half of these children failed to demonstrate comprehension of more than half of the tested information in the program -- despite the fact that they enjoyed watching it and were thoroughly attentive" (p.563).

Nine of the children were asked the first 10 questions midway through the program providing even greater immediacy but their comprehension was no better than those tested only at the end. Five year olds did not overall do better than four-year-olds.

There were significant differences by type of information tested. Questions about action, the "what happened" type, were by far the easiest with a mean of 72.7 per cent comprehension. For questions about the central educational theme of the program, for example, "Why can't you smell when you have a cold?" the mean comprehension was 27.9 per cent, significantly lower than that for action. The children demonstrated that while they could remember *concrete* or *iconic* material they learnt virtually nothing of the *concepts* the program was designed to teach. Had the researchers merely used recognition tests of the concrete type of material the results would have been impressive and demonstrated what a powerful educational medium we have. But as can be seen again when it comes to genuine comprehension even the best produced ETV fails.

One other interesting point emerged from the analysis. While there was no overall age difference the five-year-olds were superior to the four-year-olds only on the iconic, action questions. Increasing age and experience would not appear to help in remembering the conceptual at least to this age.

In a careful study Hodapp (1977), showed that "children can imitate a problem-solving strategy from a televised segment illustrating that strategy. However children were unable to *abstract* the strategy and apply it to a transfer task. It may be that children can learn strategies from television but cannot *recall* the strategy in the face of overwhelming perceptual differences between the televised demonstration situation and their actual problem situation" (p.176, emphasis added).

Hodapp has provided an excellent demonstration of the differences between recognition of iconic material which indicates familiarity and recall of concepts which indicates understanding. Realising the implications of his demonstration he recommends that "if such techniques are to be included in educational programs for young children they should be accompanied by planned activities coupled with feedback from an adult which will help the child transfer the strategy to real-life situations." (p.176). Once again the message is reinforced : Television on its own in its own right is not an instructive medium.

In a review of such studies, Collins and Wiens (in Press), document the inability of young children to retain even simple content, even when it is the important feature of a show, despite the many hours of viewing in which they have typically engaged. Experience with watching television therefore appears to have minimal effects on the ability to comprehend and remember. Collins and Wiens explain that "the particular processes encompassed by these *global difficulties* (not confined to any culture or social group), are presently poorly understood" (p.16, with my emphasis).

Both direct and indirect intervention strategies for overcoming these global difficulties appear also to have had only mixed results. Where positive results have been obtained they are clearly the consequence of learning from the humans who have been explaining, teaching or commenting while co-viewing. Even with direct training, however, we find the children "did not demonstrate changes in attitudes toward television that had been expected to follow learning about the medium" (p.22).

Training to understand commercials proved successful for *concretely* presented product information but failed to improve retention of more *abstract* information. Providing extrinsic motivation such as telling children to try hard to remember and material incentives also failed to improve retention (p.24).

Collins and Wiens' chapter is indeed a major review of studies of young children's learning from television and it is a dismal litany. Even the most imaginative interventions building on years of accumulated research have failed to do more than dent the massive ignorance children display about what they have just watched, and most of the data was collected by recognition tests.

If recall had been mainly used the prospective would reliably have been even more devastating, and when we consider in addition that most youngsters do not have at home a friendly researcher explaining the concepts and making the inter-relations between the 12-second takes we come full circle back to the case of John, the little boy who had nothing but a television, a well-stocked refrigerator, and an almost total ignorance of the world he lived in.

Pro-social television - A Special Case?

Widespread criticism of television's content as violent and generally anti-social impelled movements to utilise television's assumed potential for co-operation, healthier lifestyles and "the great society." If as many believed the content of television was responsible for the parlous deterioration in civic order and family life then "obviously" all one had to do was reverse the substance and sentiment of the content.

Learning "pro-social" behaviour became a critical issue because those who believe that television has the power to create pro-social behaviour, or increase its frequency of occurrence, are vocal about the positive potential of the medium and account for much of the optimism about the future of the medium. Research on television's influence on pro-social behaviour burgeoned into one of the most significant developments in the decade after the report of the Surgeon-General's Committee. (National Institute of Mental Health, 1982, p.48).

Pro-social is used here in the general sense which specifies that which promotes socially desirable ends benefitting another person or the society in general. (NIMH, 1982, p.48). Implicit in the term is the transmission of ideals rather than purposes or merely goals and it is concerned with the possibility of television's reformation; its potential as a genuinely socially responsible medium. It deals specifically with such behaviours as co-operation which are central to the ideals of harmony and nurturance and the associative society. In short conventional education having failed pro-social television is seen as the new hope.

In essence pro-social television is more marketing than education (Emery M, 1982), and its successes and failures can be clarified by reference to the dynamics of product marketing (Emery M, 1985 : 1987). Television fails to communicate abstractions but its exploitation of recognition makes it a powerful tool in selling discrete tangible objects. A pro-social concept which can be easily translated into a product (productified), can be successfully marketed and behaviour will probably change if a few other simple rules are observed. For example nutrition is an easy concept to "productify" as it consists of material objects namely food. There is, however, no easily recognisable object of tolerance. If the concept cannot readily be 'productified' then there are two choices; waste money on advertising the concept or value, or find a substitute product which symbolises the concept. Sale of the Life: Be In It T-shirt is an excellent example of the latter strategy.

Taking a current example: The 'Grim Reaper' advertisement will shock, horrify and make aware. But it will not change behaviour as an AIDS victim is impossible to identify until it is too late. On the other hand product advertising for condoms will certainly work on condition that there is a strong relation between the Unique Selling Proposition (USP), of the advertisements and the packaging of the product at point of sale.

A typical example of pro-social experimentation is provided by Gorn et al, 1976. Three-year old to five-year old English white Canadians (N=205), were shown "Sesame Street" with inserts of non-white and a French Canadian child. Immediately after viewing the experimental and control children were shown still photographs of white, Oriental, Indian (Canadian), children and the French-Canadian boy, Richard, and asked which they would most like to play with tomorrow. The experimental groups who watched inserts of non-white and French Canadian chose those children as playmates more often than the controls who viewed whites only. Degree of integration displayed in the inserts had no effect and neither did frequency of exposure.

This study confirms the findings of Bogatz and Ball (1971), that exposure to "Sesame Street" created positive attitudes towards other races which provided the basis of initial hope for television's pro-social influence. Now examine this confirmatory study in more detail. Firstly it is stated that it made no difference whether the experimental children merely viewed Richard, the French-Canadian, or heard him speaking French. In other words it did not matter that they did not understand a word he said; he was "an attractively presented child" (p.277). All inserts in fact presented attractive children (people), as does the news, the weather services and the rest of the fare (Postman, 1982, and the case of discrimination against a female anchor-person; US Jan. 1984). Attractive people are attractive and their incomprehensibility is irrelevant when making television-influenced choices.

Secondly the test was *recognition* and it was *immediate*. Previous studies had failed to find a pro-social effect after a year had elapsed. Learning from television as measured by recognition is short-lived. It must be appreciated that none of the three studies actually approached a behavioural outcome (playing comfortably with strange children). All are variations on a theme of measuring attitude change and as Silverman's (1977, in Comstock et al, 1978, p.257), study showed in this area, behaviour is different from attitude.

The Canadian study was replicated (Goldberg and Gorn, 1979), using Japanese-Canadian and native Indian children in the inserts. Again more of the experimental group chose non-white playmates from the photos than did the controls. In this replication, however, the same children were also questioned again the next day. By this time some the experimental group had changed their preference back to white yielding an almost identical patterns of choice to the control group.

Once the initial impact of television had worn off the forces that led white children to prefer white playmates seemed to assert themselves. Unfortunately the questions directed at obtaining reasons for the shift in preferences in the experimental group *did not elicit any reactions that the children could verbalise* (p.30 with my emphasis). In addition they conducted a small extension of the study with 40 lower-income children. There was *no generalisation*; 90 per cent of these children still preferred whites as playmates. The authors conclude that as was learnt from "Sesame Street" it is the most privileged children who benefit.

Again a now familiar pattern of results is seen; an initial effect (for some), conveyed through positive features -- "looked prettier" -- Goldberg and Gorn contemplate classical conditioning of television characters with "the pleasant settings, music, play activities" (p.29). Secondly there is the rapid decay of the effect. Overall these studies show that sheer familiarity combined with positive affect produces immediate recognition and a pseudo choice. As noted above none of the children could conceptualise a reason for changing their mind the next day which is a fair indication that there was no real thinking or conceptualisation behind the initial choice. The choices were made on the basis of iconic, superficial, descriptors of such aspects as hair and color.

Unfortunately the rest of the pro-social literature is more of the same. In summary the realities of the medium are such as to preclude the possibility of large-scale pro-social television. Even if it were feasible for the networks economically (and it has proven not to be particularly so for the US Public Broadcasting Service and maybe the ABC), there is still a question of ethics. Should a democracy promote a medium which reduces rather than increases choice? Exploit a basic adaption of the human nervous system? Perhaps we should re-direct some of the research funding going to reform the content of television into research which could concentrate on creating a broader cultural environment within which people can learn and not feel the need to search for a maladaptive eco-niche such as heavy television viewing.

Adult learning from television tells the same story (Emery M, 1985).

ANALYSIS

As there is substantial evidence of television's failure to educate we must examine this informative medium and we must also ask why it is so difficult for so many people to accept its documented failure. These two aspects are inter-related as will be demonstrated.

Why it fails to educate

As we saw from the 1958 evidence Carpenter knew that the talkies were a highly educative medium and could only surmise that television's early failure would be rectified by simply spending more research energy and money on making it work. He was a product of the belief system of the day; the world view of mechanism (Pepper, 1966), an assumption of a Newtonian world which translated into theories of learning and education has been responsible for the near universality of design of our educational system as *teaching rather than learning* systems. In this context its essence is in a machine theory of information and its reception by our sensory apparatus. Bits of information are picked up by ears and eyes and integrated in the "black box." Obviously the more sensory channels employed the more the information received (Emery F, 1981), which is why television "had to be better" than radio or slides and equal to projected film.

There are two problems with this. Firstly this is not the way our *perceptual system* works. It is a unified system adapted to extract meaning directly from our informational environment (Gibson, 1966; 1979; Emery F, 1981; Starkey et al, 1983).

Secondly as McLuhan tried to tell us each medium is *unique*. Television he described by the phrases "the medium is the message" (McLuhan, 1964), and later "the medium is the message" (McLuhan and Fiore, 1967). He was in the main ridiculed by his academic peers.

But projected film and television are two different technologies, television is built around a Cathode Ray Tube (CRT), which beams electrons directly at the viewer. It is, therefore, a *radiant* light source. Projected film employs *reflected* light to which we are adapted (Emery and Emery, 1980). Radiant light lacking macroscopic structure provides no information to a visual system (Gibson, 1966; Fowler and Turvey, 1982, p.6). Additionally the flashing dot illuminating the phosphors which create the picture is delivering 50 visual stimuli per second a rate which exceeds the human processing capacity (Eccles quoted in Cater and Adler, 1975, p.6). In such a situation the human brain employs an adaptive mechanism - it habituates or, in anthropomorphic terms, decides to ignore the signal. It lowers the frequency of its response. Little wonder then that television fails to educate and that testings of its neurophysiological effects have supported the original hypothesis of slowed cortical activity (Emery and Emery, 1975, 76). The information being ostensibly received is not being processed. Televiewing is more *perceptual deprivation* than knowledge enhancement.

It is now clear that watching television produces a slowing or reversal in the normal waking operation of the brain. In normal daily life there is evidence of a pattern where Beta waves (the fastest at 13+ cps), predominate and Delta waves (the slowest at 1-3 cps), are rare. Slowing has been documented in various ways by Krugman, 1970, 1971; Featherman et al, 1979; Appel et al, 1979; Weinstein et al, 1980; Walker, 1980; (M Emery, 1985), and nowhere more dramatically illustrated than by Silberstein et al, 1983.

Testing 24 Australian children with four different contents (programs), Silberstein et al could not raise the level of cortical response above that of roughly twice as much Delta wave as Beta; the opposite pattern of activity needed for an analytical thoughtful response to the information presented. The dominant response was to the medium not the programs yet the official conclusion was that "the Emery proposition was not confirmed." It was! At best the influence of content was about 12.5 per cent. Why deny the results? We will come back to this.

We have not in any sense evolved neurophysiologically to make television a useful intellectual tool. And no amount of fiddling with the content is about to change this most basic fact of life. These same neurophysiological facts also account for its brilliance as a marketing tool as the industry learnt quickly how to use them to maximum advantage.

Why we have been misled

We can only speculate about the reasons for Silberstein et al's failure to adequately analyse and report the results of their experiment but as we have seen throughout this story there has been more than a marked reluctance to confront the masses of data which flatly contradicted the deeply held beliefs that gaining knowledge is a linear process of adding bits that the content of television is more important than the nature of the medium and that we have the infinite capacity to adapt to our innovative technologies. The educational-technological industrial complex has vested interests in preserving its dominant paradigm.

Clearly the standard established at the outset for research and reporting in this field continues to this day. The consequences are many not the least being a public which has been misled about their learning technologies and serious damage done to the credibility and standing of the field of social science. It is no exaggeration to say that in this area at least the predominant paradigm of social science has failed.

(a) The Pattern Continues

Evidence given in 1956, 1958 and 1959 focussed heavily on the peculiar power of television to demand attention and concentration. It is part of the Newtonian paradigm that attention equals learning. If people were attentive then they had to be learning. But it is the neurophysiological effects of television that account for its peculiar power and growing awareness of this has caused the establishment to fight back. "There is as yet no evidence that the television medium has any unique control over the young child's attention separate from its content." (Anderson et al, 1981, p.157 - a study paid for by CTW). In a series of experiments they attempted to prove that the comprehensibility of the content determined attentiveness.

In the first they found that the children were as attentive to the visual only segments as they were to the most comprehensible segments. The implications of this for their hypothesis are not discussed. Their assumption that comprehensibility is higher when both the visual and auditory dimensions are present appears to be wrong if their logic that attention and comprehensibility are correlated is followed. Other studies have shown that didactic segments with a strong verbal component reduce attention (Salomon et al, 1972, p.2), and that total viewing time is not related to ability to listen (Neuman, 1980). Information is avoided in television advertisements because it is irritating and distracts attention (Emery M, 1985). Anderson et al then randomly rearranged scenes within "Sesame Street" so that the sequence was less meaningful. This led "to little change in visual attention" (p.156). In other words it did not matter whether the content made sense or not it was still viewed with the same degree of attention. As Hollenbeck and Slaby, 1979, point out, "children are already attentive to the television medium as early as 6-9 months of age" which makes nonsense of the idea that comprehensibility determines attentiveness.

Trying again Anderson et al interspersed the program with bits of foreign language and backward playing tape and proved that these were distracting as we would expect from studies of marketing practice. Anderson et al's data supports those who claim the *medium* plays a significant role but their conclusion given above denies it. Clearly the same assumptions that operated in 1956 underlie the 1981 study and there is the same mis-reporting as we saw through the early experiments. Perhaps it is simply a case of the fact that nobody has time to read the literature in the field or to think. Kittross (1969, p.213), referred to "galloping empiricism ... our present occupational disease" and deficiencies in both basic skills and philosophy of science. Nothing appears to have changed. Exactly the same assumptions and misconceptions can be found in papers by Kupisiewicz and White extolling the virtues of the new technological learning revolution (Prospects, 1984, Emery, M., 1985).

There has never been any evidence for human memory as a warehouse for bits of information. On the contrary learning is a product of people living and having positive human experiences in a learningful environment (Sprigle, as above, p.215-217; Emery, M., 1986).

Let us take another example. The distinction between recognition and recall is an old and basic one. From William James on it has been acknowledged that the process of recall alone is properly indicative of remembering, learning and understanding. Recognition indicates only familiarity or acquaintance without necessarily involving any form of knowing about or understanding. Simply naming or pointing to something without formulating a thought or an idea is quite artificial (Luria, 1981, p.116). Concepts or conceptual learning cannot be measured by tests of recognition. They will record accurately only the most concrete, iconic aspects of any meaningful phenomenon. Recognition is not therefore an appropriate form of evaluation for education. It is thus a testament to the seriousness of the malaise afflicting television research and related fields of social science that this distinction has been lost.

I have accumulated many instances of this conceptual confusion (Emery, M. 1985), but the single example which appears most responsible for the confusion in the minds of the populace at large is "Sesame Street."

Lesser (1975), presents a selection of the evaluative studies of "Sesame Street" and each of those mentioned used recognition memory rather than that of recall. Children were required to choose the appropriate symbol from a prepared list or, in some cases, had only to point without using words (p.216). This program and its tests have been translated into many languages. In every case the results of these tests show that the children have learnt from watching. An example is Diaz-Guerrero et al (1974), but out of nine tests only part of one employed recall. When these higher level tests are used to evaluate the learning from "Sesame Street" the program fails dismally (Sprigle, 1971; Cook et al. 1975). It is only the recognition test loophole that has allowed the Children's Television Workshop to continue to make its loud claims for "Sesame Street" and they appear never to have answered their critics on this point.

The loss has been felt throughout social science causing many instances of confusion:

"PS. I realise there is something self-contradictory not to say schizophrenic in this paper which, on the one hand, details the hopeless unfitness of American television for the work of serious thinkers; and on the other begs the serious thinker to make greater use of it. But the contradiction exists in my own mind as well and it would be deceptive to try to edit it out here. DL" (Littlejohn, 1975, p.79).

Harvey Lesser (1977), is another victim. Having analysed data from all over the world and found it confusing and contradictory he simply cannot resolve the dilemma. He, too, for all his painstaking work has failed to grasp the distinction between knowledge of (familiarity), which can be assessed by recognition but not recall tests and knowledge about which can be evaluated by tests of recall.

Gwen Dunn (1977), who gave us the case study of the deprived child, John, is another case in point. After a book full of participant observation data documenting the fact that children do not learn from television she is beguiled by the weight of academic data provided by tests of recognition.

All of these pieces of the jigsaw puzzle are inter-related.

The links between the most primitive form of familiarity the knowing of something, recognition and watching television have been made explicit (Krugman, 1977, p.9):

"What seems to happen [when we watch television], is that we store a picture memory - an image memory - without words. There is no recall because recall is the word form of the picture. There is no recall because we have had only right-brain involvement. There is no left-brain involvement because no connections, associations or thoughts occurred at the time of exposure. There is only a capacity - or an increased capacity if repetition occurred - for recognition memory."

Identification may precede conscious experience and occur in the absence of any conscious experience whatsoever (Turvey, 1974, p.172). Silberstein's experimental children were not in a normal waking state of consciousness. In fact the best description of their state is that they were two-thirds asleep and if this is any indication of television's power to educate it ties the neurophysiological data even more tightly to the educational technologists' failure. Singer (1980, p.42), puts it well:

"The problem with recognition memory is that it is not useful when one does not have the object before one for identification. Thus in the many kinds of decision-making situations we face we need the advantages of the verbal-and-organized-coding strategy in order to retrieve the information. Simple exposure to material cannot assure its efficient retrieval. Retrieval usually requires a more active process that is associated with taking the time to examine the material perhaps to label it verbally and, then, also to apply it mentally in the form of some thought about decision processes." (Singer, 1980, p.42).

Almost nobody is prepared to disagree with the fact that television induces passivity and reduces *conversation*; the essential "glue" of human culture. Learning which results in recall is a highly active process which involves the manipulation of concepts and often material in order that knowledge about and genuine understanding is achieved. We can again only speculate about the pressures on Krugman, an employee of General Electric, at the time one of the largest manufacturers of television sets in the US to arrive at his theory of passive learning from television (Krugman and Hartley, 1970), as his first 1970 paper showed that he was well aware of the implications of his startling experimental results. It looks very much like an effort to reassure that although cortical capacity is severely reduced and not remembering is the result there is still a so-called low involvement form of learning occurring.

Passive learning is a contradiction in terms and indeed, by his own admission the very special manner in which "television teaches the young child to 'learn to learn'" may cause the child to see learning to read as intolerably difficult and "years later remedial reading may make up some of the lost ground." (Krugman, 1977, p.8). Sprigle and other teachers agree with him.

The single-minded focus on attentiveness has also lost sight of the powerful distinction between attention and vigilance which fuelled much significant research including early work on the effects of radar. The vigilance decrement was first identified during World War II (O'Hanlon et al, 1977, p.147). This was followed by the early classic work of Mackworth (1950), but later studies using college students "who performed simplistic monitoring tasks in impoverished laboratory environments" appeared to have lost sight of the critical nature of vigilance research for many aspects of modern life. Norris a former pilot expresses several times in his book "The Unsafe Sky" (1981) his astonishment that air traffic controllers did not see what was happening on their screens. They had lost the minimal level of vigilance and were to all extents and purposes in something approaching a hypnagogic state.

"The vigilance decrement is the gradual, unconscious loss of the ability to react effectively to infrequent, unpredictable but critical events in passive, monotonous work" (O'Hanlon et al, as above). As Chein (1972), points out attention is now used to cover the meaning of vigilance which confuses the entire field. Vigilance has traditionally been the readiness to respond to changes in the environment or the ground of the figure which is demanding attention. The extraordinary attention paid to television is such as to disturb the balance of attention and vigilance (as any Mum or Dad will agree), and has been documented by Sproull, 1973.

Mainstream psychology today maintains a fragmented approach to the human being where we find aspects such as cognition, affect and memory treated as separate systems. The open systems approach with its emphasis on direct perception, naive realism and ecological knowing cuts through many of the distinctions made by this contemporary perspective and restores useful ones such as between attention and vigilance. When we find from many studies that although children have been "glued to the set" they cannot remember what they have seen we firstly have reason to query of attention over vigilance. We also must argue that if children cannot remember, understand or explain what it is that they have viewed then they have simply not been perceiving or learning in the sense defined earlier. One suspects that they have merely been distracted, daydreaming or enjoying time out (Emery and Emery, 1976 p.74). Television as a medium has been shown once again to present a problem for contemporary psychology one they have dealt with mainly by sweeping it under the carpet.

The findings from research into television point to the power of the medium rather than the content and it has, therefore, been wiser for the academic community to concentrate on fragments rather than attempt to confront the contradictions, the disillusion and continuing discrepancies that haunt those who dared to risk a comprehensive system view.

On the data presented here "the medium is the message." After all children are and always have been remarkably attentive and vigilant creatures "little pitchers with big ears"; their job is to learn in order to survive. But when under the influence of television their most fundamental ability is muted and they are merely attentive.

In Conclusion

The academic literature is replete with reports of great successes for television as educator but none of them stand up to examination. When the distinction between recognition and recall is made clearly and simply it becomes obvious that we have been conned. Television relaxes, entertains, fills in time, baby-sits and removes the necessity to evaluate the world independently. It also disadvantages, distorts, seduces and dissociates (Emery, M. 1985). The one thing it appears not to do is to produce the learning which can better inform the choices that people are making in their efforts to improve their lots according to their own values and ideals.

Rather than continue the losing battle of attempting to produce the programming which some believe could finally make it educative why not just admit it is an excellent medium for entertainment and advertising, and make sure we all use it appropriately.

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